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KNOWLEDGE CENTER
IT MANAGEMENT

Recovery Ahead!

It's time to get your IT house in order so you'll be ready when (or if) IT spending rebounds later this year. This special report will help you improve internal processes and focus on business ROI. Here are some of the highlights:

- **What you can do now** to prepare for better times.
- **Software tools for managing IT projects** — and how to shut down a project that's gone bad.
- **Beware of those online ROI calculators.** They're mostly vendor marketing tools.
- **How to get ROI** from your IT training programs.

STORIES BEGIN ON PAGE 29.

Online Exclusives

Here's a sampling of the additional features and resources available on our Web site at www.computerworld.com/q?k1900

- There's more to being a real IT leader than being a great implementer.
- The dawn of the real-time enterprise: Batch processing isn't good enough anymore.
- A questionnaire that can help you decide whether an IT project should get the ax.

HP, COMPAQ FANNING MERGER FLAME

They insist IT benefits include R&D, services

BY JAIKUMAR VIJAYAN

Executives at Hewlett-Packard Co. and Compaq Computer Corp. continued to pitch the technology benefits of their proposed $22 billion merger ahead of this week's scheduled shareholder votes.

Meanwhile, a senior executive in Compaq's services organization said the merger won't result in changes to the customer representatives, support teams and account managers that users are accustomed to dealing with.

The reassurances came just days before shareholders of the two companies are slated to vote on the merger. The voting will take place March 19 and 20. Also last week, a flurry of voting decisions were made by large institutional shareholders of both companies (see chart, page 71).

HP/Compaq, page 71

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VIRGINIA TO NIX KEY UCITA PROVISION

Merging firms could be kept from transferring their software licenses

BY PATRICK THIBODEAU

The state of Virginia is on the verge of backpedaling on a provision in its UCITA law that blocks vendors from holding up software license transfers between users involved in mergers or acquisitions.

Corporate executives said the looming repeal of that sentence in Virginia's version of the Uniform Computer Information Transactions Act underscores the need for IT managers to negotiate software licensing contracts that won't interfere with their companies' acquisition plans.

"You have to do the work upfront and negotiate the contract right in the first place," said David Weidenfeld, senior counsel at McDonald's Corp. in Oak Brook, Ill.

Prodded by IT vendor lobbyists, both houses of the Virginia General Assembly voted this month by veto-proof margins to strike the provision. The bill awaits the signature of

UCITA, page 71



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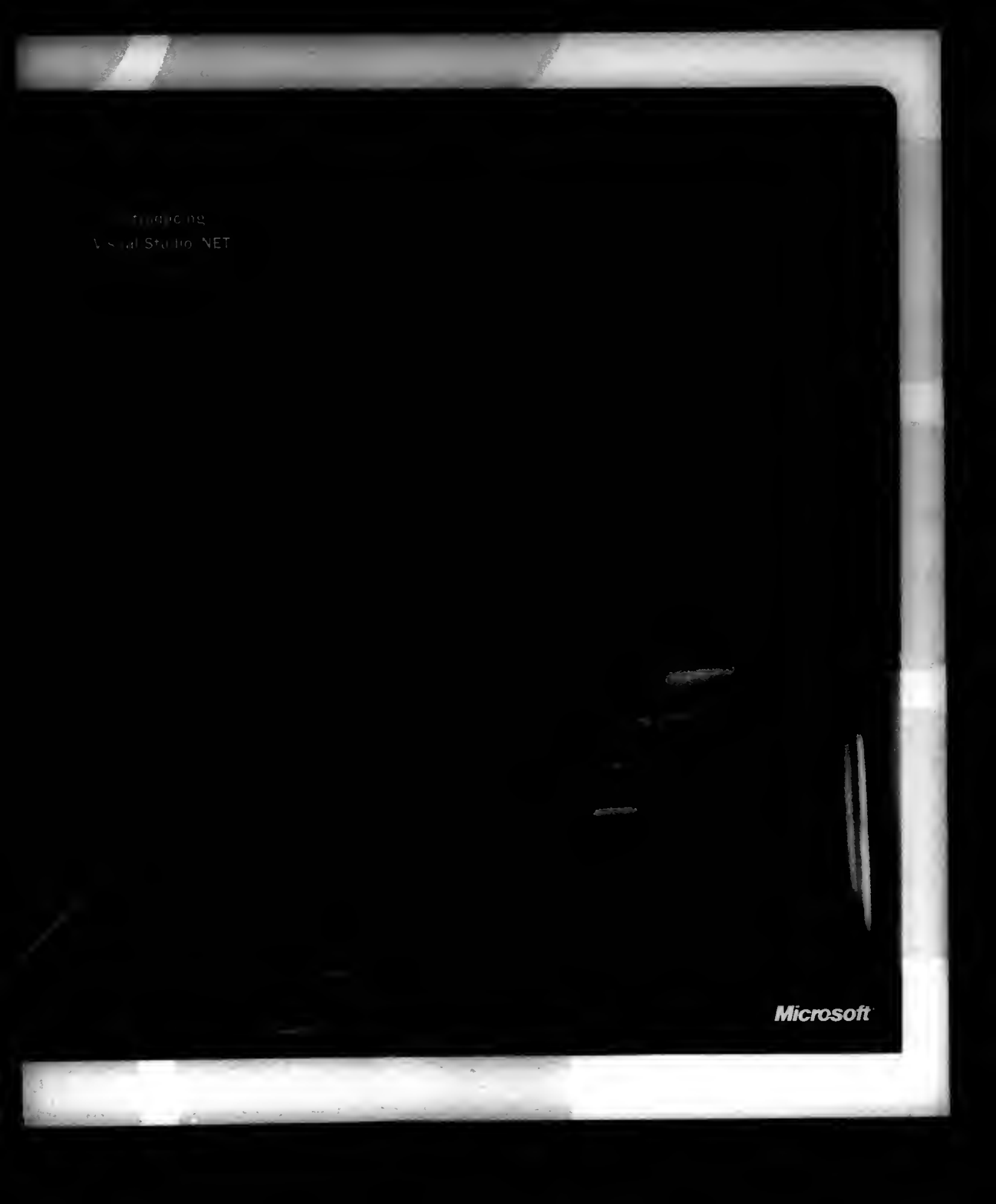
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6 Compuware accuses IBM of source-code theft and antitrust violations.

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Windows Behaving Badly

Developers of Windows applications share some of the blame for the operating system's instabilities, writes consultant Thierry Demorre.
www.computerworld.com/community/os

Sun Thoughts

IT consultant Brandon Musler says Sun should merge with Dell.
www.computerworld.com/community/ecommerce

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KNOWLEDGE CENTER: IT MANAGEMENT

SPECIAL REPORT

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ONLINE: Check our Web site for resources on project management. **www.computerworld.com/q?27501**

50 Dead in Its Tracks Identifying troubled IT projects isn't easy. But once you've labeled the losers, there's a right way to apply the brakes.
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ILLUSTRATIONS BY PETE TURDEN; PHOTO BY TAMARA REYNOLDS

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AT DEADLINE

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Say more competition important, but case could distract Sun

BY PATRICK THIBODEAU
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Other users see little to be worried about. Ed Boyd, a systems analyst at Detroit Edison Co. who does Java intranet development, said he doesn't believe the lawsuit will have a significant negative impact on what he does. Citing the limited settlement terms in Microsoft's antitrust conflict with the government, Boyd said Sun is facing an uphill battle. "I just don't think they are going to get the benefit out of it that they think they are going to get," he said.

A Billion Here, a Billion There

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Sun Microsystems is the third technology vendor to file an antitrust suit against Microsoft this year, and it may not be the last. Sun, like the other litigants, is using the findings in the government's antitrust case as a jumping-off point for its own claims. Other companies may do the same, but at potentially great risk.

Sun and the two other litigants - Netscape Communications Corp. and recently dissolved Be Inc. in Menlo Park, Calif. - feel they can afford to challenge what they see as a monopoly. In Be's case, there's probably nothing to lose. Nonetheless, it's a daring undertaking.

"Anyone who sues Microsoft is tugging on Superman's cape, and you don't tug on Superman's cape lightly," said Bob Lande, an antitrust professor at the University of Baltimore School of Law.

Fear of retaliation by Microsoft may keep some potential litigants on the sidelines. "It's not going to be open season on Microsoft," Lande said.

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The financial damages "could be enormous," said Tyler Baker, an antitrust attorney at Carrington, Coleman, Sloman & Blumenthal LLP in Dallas. If the lawsuits succeed in establishing a tying claim, that opens the door to a new set of remedies.

Anything is possible, Baker said. "You are talking about major companies with law firms that have enormous capabilities," he said.

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Addendum

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N.H. Agency Mired in Data Warehouse Effort

State's corrections system still not running after three years of work on CA-led project

BY MARC L. SONGINI

The New Hampshire Department of Corrections by year's end should complete a custom-built data warehouse project that was originally slated to be finished in October 1999 — or so hope state officials, who need the system to send restitution payments to crime victims in a more timely manner.

The corrections department has been mired in the project since early 1999, when work began as part of its Y2k compliance effort. Problems arose later that year following Computer Associates International Inc.'s acquisition of Computer Managemeot Sciences Inc. (CMSI), the Jacksonville, Fla.-based application development and outsourcing firm that was leading the project.

In early 2000, CA restarted the project virtually from scratch, and the system wasn't ready in time to meet the Y2k deadline, forcing the corrections departmeot to use manual intervention when processing restitution checks. More than two years later, the Wiodows NT system still isn't running. The state has paid out $230,000 but is withholding the rest of the $580,000 project price tag until the work is finished.

Going Backward

"This is absolutely not acceptable," said David Welch, a New Hampshire state representative and chairman of the criminal justice comminee that oversees the Concord-based corrections department. "For all practical purposes, we never entered the 21st century [on technology]. We've taken it back to the 18th century, except we're not using quill pens."

CA had no expertise with this kind of state government system before it hought CMSI, Welch said. But neither he nor Larry Blaisdell, director of field services at the corrections department, have blamed the problematic rollout exclusively on Islandia, N.Y.-based CA.

The restitution system, which will manage the process of collecting money from criminal offenders and issuing cbecks to their victims, is highly specialized. Welch noted that there was also a change io leadership at the corrections department. "Some things fell through the cracks, and there was a lack of direction for the job," he said. "And CA didn't follow through, either."

Bob Dinkel, a senior vice president at CA, said the New Hampshire state government is a big user of the company's software. CA is committed to completing the system, Dinkel said, adding that the project has been complicated by evolutionary changes in its scope.

In addition, Dinkel said the original project team from CMSI didn't adequately define the specifications of the system, which eventually led CA to send a new team to manage the development process.

"I believe that we had the right approach and the right design," Blaisdell said in a written statement. He added that the corrections department "will play the hand we are dealt to the best of our abilities."

IT staffers at the agency are now testing data in preparation for a migration from its old system to the new one, Blaisdell said. But completing the data input work and getting the new system ready could take until year's end or beyond.

And Welch said he's still frustrated by the tardiness of the software development work. "I understand we're far enough into the process that you don't throw away the baby with the bath water, but I'm not happy about it all," he said.

Corrections Needed

Problems have left New Hampshire's restitution-payment system about three years behind schedule.

What state officials say: The project got bogged down after CA bought the original software developer three years ago, although internal issues at the Department of Corrections have also played a role.

What CA says: The original developer didn't adequately define specifications for the system, and the state has made multiple changes in the scope of the project.

U.S. Census Bureau Plans for First Paperless Tally in 2010

Considers huge order of mobile computers

BY BOB BREWIN

The U.S. Census Bureau plans to conduct its first paperless door-to-door census in 2010, and A. Edward Pike, the bureau's gadget guy, has a potential order for handheld or mobile computers big enough to make any salesman salivate.

Pike, assistant divisioo chief for systems, geography and content programs in the bureau's Decennial Management Division, wants to buy a half-million mobile computing devices to support the door-to-door canvass of 40 million bouseholds in 2010. He's evaluating potential mobile computing technologies (see timeline) and hopes to pack whatever device the Census Bureau purchases with hardware and software that will allow the 500,000-strong field workforce to function more efficiently and cheaply.

Ideally, the Census Bureau would deploy mobile computers equipped with Global Positioning System (GPS) receivers, telecommunications capabilities, and map and e-mail software, said Pike, who added that wireless devices are being strongly considered.

However, the bureau has a tough price target — about $100 per device — which Pike acknowledged "may be a bit aggressive." But since that works out to a $50 million price tag tn equip his door-to-door army, Pike doesn't want to go much higher. With the cost of a laptop computer at $1,000 or more, he has already ruled nut that option.

"It can't be $1,000 each," Pike said. "That's not cost-effective. We might just as well stick with paper." Industry sources have told him that "what we want to do is feasible from a technology point of view," but the price issue is still in question, he said.

John Inkley, manager nf federal sales at Palm Inc. in Santa Clara, Calif., agreed that in terms of technology, Palm could meet the agency's requirements. But, he added, "we can't do it for $100 a box today," even though the lowest-priced Palm on the market, the m100, sells for about $99.

What the Census Bureau wants would impose additional costs, including "$199 for a GPS unit, a wireless modem for another $150, and $100 worth of software," said Inkley.

While prices for these add-ons would be lower by the time the Census Bureau bought them four to six years from now, Inkley said, the agency will still have a hard time hitting its cost target. But, he said, "I would like to get closer [to $100] than anyone else."

Cindy Box, director nf marketing for the iPaq mobile solutions division at Compaq Computer Corp., agreed that "it's technically doable today to provide the features" Pike wants, but she was also stymied by the price question. Box said Compaq has kept the price of the Pocket PC-based iPaq in the $500-to-$650 range since its introduction almost two years ago, while adding features and functionality. But, she said, "a half a million units is an intriguing opportunity."

Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn., said that based on the historic downward price curve of computing products, "$100 is not unreasonable, plus people will commit unnatural acts to sell a half-million computers."



Quick Link: To read more about the Census Bureau's IT plans, visit our Web site: www.computerworld.com/t/72072

AT DEADLINE

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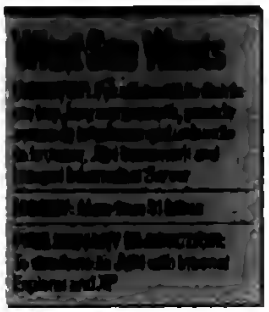
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"This is absolutely not acceptable," said David Welch, a New Hampshire state representative and chairman of the criminal justice committee that oversees the Concord-based corrections department. "For all practical purposes, we never entered the 21st century [on technology]. We've taken it back to the 18th century, except we're not using quill pens."

CA had no expertise with this kind of state government system before it bought CMSI, Welch said. But neither he nor Larry Blaisdell, director of field services at the corrections department, have blamed the problematic rollout exclusively on Islandia, N.Y.-based CA.

The restitution system, which will manage the process of collecting money from criminal offenders and issuing checks to their victims, is highly specialized. Welch noted that there was also a change in leadership at the corrections department. "Some things fell through the cracks, and there was a lack of direction for the job," he said. "And CA didn't follow through, either."

Bob Dinkel, a senior vice president at CA, said the New Hampshire state government is a big user of the company's software. CA is committed to completing the system, Dinkel said, adding that the project has been complicated by evolutionary changes in its scope.

In addition, Dinkel said the original project team from CMSI didn't adequately define the specifications of the system, which eventually led CA to seod a new team to manage tbe development process.

"I believe that we had the right approach and the right design," Blaisdell said in a written statement. He added that the corrections department "will play the hand we are dealt to the best of our abilities."

IT staffers at the agency are now testing data in preparation for a migration from its old system to the new one, Blaisdell said. But completing the data input work and getting the new system ready could take until year's end or beyond.

And Welch said he's still frustrated by the tardiness of the software development work. "I understand we're far enough into the process that you don't throw away the baby with the bath water, but I'm not happy about it all," he said.

Corrections Needed

Problems have left New Hampshire's restitution-payment system about three years behind schedule.

What state officials say: The project got bogged down after CA bought the original software developer three years ago, although internal issues at the Department of Corrections have also played a role.

What CA says: The original developer didn't adequately define specifications for the system, and the state has made multiple changes in the scope of the project.

U.S. Census Bureau Plans for First Paperless Tally in 2010

Considers huge order of mobile computers

BY BOB BREWIN

The U.S. Census Bureau plans to conduct its first paperless door-to-door census in 2010, and A. Edward Pike, the bureau's gadget guy, has a potential order for handheld or mobile computers big enough to make any salesman salivate.

Pike, assistant division chief for systems, geography and content programs in the bureau's Decennial Management Division, wants to buy a half-million mobile computing devices to support the door-to-door canvass of 40 million households in 2010. He's evaluating potential mobile computing technologies (see timeline) and hopes to pack whatever device the Census Bureau purchases with hardware and software that will allow the 500,000-strong field workforce to function more efficiently and cheaply.

Ideally, the Census Bureau would deploy mobile computers equipped with Global Positioning System (GPS) receivers, telecommunications capabilities, and map and e-mail software, said Pike, who added that wireless devices are being strongly considered.

However, the bureau has a tough price target — about $100 per device — which Pike acknowledged "may be a bit aggressive." But since that works out to a $50 million price tag to equip his door-to-door army, Pike doesn't want to go much higher. With the cost of a laptop computer at $1,000 or more, he has already ruled out that option.

"It can't be $1,000 each," Pike said. "That's not cost-effective. We might just as well stick with paper." Industry sources have told him that "what we want to do is feasible from a technology point of view," but the price issue is still in question, he said.

John Inkley, manager of federal sales at Palm Inc. in Santa Clara, Calif., agreed that in terms of technology, Palm could meet the agency's requirements. But, he added, "we can't do it for $100 a box today," even though the lowest-priced Palm on the market, the m100, sells for about $99.

What the Census Bureau wants would impose additional costs, including "$199 for a GPS unit, a wireless modem for another $150, and $100 worth of software," said Inkley.

While prices for these add-ons would be lower by the time the Census Bureau bought them four to six years from now, Inkley said, the agency will still have a hard time hitting its cost target. But, he said, "I would like to get closer [to $100] than anyone else."

Cindy Box, director of marketing for the iPaq mobile solutions division at Compaq Computer Corp., agreed that "it's technically doable today to provide the features" Pike wants, but she was also stymied by the price question. Box said Compaq has kept the price of the Pocket PC-based iPaq in the $500-to-$650 range since its introduction almost two years ago, while adding features and functionality. But, she said, "a half a million units is an intriguing opportunity."

Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn., said that based on the historic downward price curve of computing products, "$100 is not unreasonable, plus people will commit unnatural acts to sell a half-million computers."

2010 Census Technology Timeline

In December, the Census Bureau began soliciting industry sources, seeking suggestions for potential mobile computer technologies to be used in its first paperless door-to-door census.

- **Jan. 29, 2002** Vendor suggestions received; evaluation begun
- **2004-06** Field testing and evaluation of mobile technologies
- **2006-08** Acquisition of selected technology
- **2008** Full-scale dress rehearsal
- **March 2010** Mail questionnaires to 120 million households
- **Spring-summer 2010** Door-to-door census with mobile computers conducted at approximately 40 million households.

Quick Link To read more about the Census Bureau's IT plans, visit our Web site www.computerworld.com/q/720072

Compuware Suit Targets IBM's Mainframe Tools

Code theft and antitrust charges raise potential software cost issues for users

BY JAIKUMAR VIJAYAN

COMPUWARE Corp.'s lawsuit against IBM alleging source-code theft and antitrust violations may be the fallout from IBM's quiet but intense struggle to expand its presence in the mainframe software business.

At stake for users, in the short term at least, are IBM's efforts to make mainframes more cost-competitive.

"When you look at the big picture, IBM has been trying to improve the price/performance of mainframes," said Dan Kaberon, parallel sysplex manager at mainframe user Hewitt Associates LLC in Lincolnshire, Ill.

Compuware last week charged IBM with illegally using its intellectual property in IBM's new File Manager and Fault Analyzer testing tools.

The Farmington Hills, Mich.-based company also claimed that IBM has illegally used its monopoly position in the mainframe hardware market to gain an advantage in the software tools market.

Cornering the Market

According to the Compuware suit, which was filed in U.S. District Court in Detroit, IBM is denying rival vendors necessary prerelease information on its hardware and software. Moreover, Compuware charged that IBM's Global Services group has been steering customers toward IBM's own products.

IBM declined to comment about the suit.

The merits of the case must be decided in court, said Mike Kahn, an analyst at The Clipper Group Inc. in Wellesley, Mass. But, he added, the lawsuit highlights a growing conflict as IBM tries to expand in the mainframe software market to protect its mainframe hardware revenue.

"It's the same old story of people trying to maintain their revenue streams," Kahn said.

Responding to Unix vendors such as Sun Microsystems Inc. and Hewlett-Packard Co. that are pushing into big-iron territory, IBM is aggressively cutting mainframe prices and introducing flexible, lower pricing for its software.

But software vendors such as Computer Associates International Inc., BMC Software Inc. and Compuware have been reluctant to adopt IBM's pricing models, said David Floyer, an analyst at IT Centrix Inc. in Mountain View, Calif.

'Hostage Pricing'

Kaberon said this has hurt users like him. "Users have been getting killed by third-party software vendors and what can only be called hostage pricing," he said.

Any attempt by IBM to grow in the mainframe software utility business is a good thing for users, Kaberon said.

Mainframe users today spend nearly 55% of their software dollars on products from independent software vendors, compared with 45% on IBM products, said Pat Cicala, president of Cicala & Associates LLC, an IT procurement consultancy in Hoboken, N.J.

"From IBM's point of view, it is absolutely vital to make its platforms more cost-effective" by going after more software market share, Floyer said.

That's a task that IBM has pursued with vigor, through aggressive discounts and software replacement programs, according to Cicala.

"A broader IBM presence in the mainframe market would probably be a good thing for users, but certainly not if it got to a point where IBM has monopoly control," Cicala said. "That would be a bad thing."

At Issue

Compuware's lawsuit alleges the following:

- IBM has misappropriated and illegally used portions of Compuware copyrighted software products in its oew File Manager and Fault Analyzer tools.
- IBM refuses to share needed technical information with Compuware.
- IBM's Global Services group is illegally tying sales of mainframe tools to the purchase of other IBM software products.

3Com to Launch Stackable Remote Switches

Software manages devices centrally

BY MICHAEL MEEHAN

If you stack it, they will come.

At least that's the new guiding enterprise philosophy of 3Com Corp. The Santa Clara, Calif.-based company jumped out of the big-enterprise switching business two years ago. But now it has put together a new enterprise road map that tries to replicate the resiliency, redundancy and data routing capabilities of chassis model switches in stackable, networked boxes (see box).

"If they want to get back into the enterprise market, they have to do it with something different than what's out there, and this is different," said Zeus Kerravala, an analyst at The Yankee Group in Boston.

The key is a software package called Expandable Resilient Networking (XRN), which lets users aggregate multiple gigabit switches even if they reside in different locations.

The first phase of the technology is set for release late this year and will manage two separate remote switches, 3Com said last week. Two subsequent phases, to be released in "months, not years," according to a 3Com spokesman, will handle up to six switches and 144 ports total.

Simple, Affordable Tools

Jim Maass, the director of technology for the Tahoe Unified School District in Truckee, Calif., said he would like to manage a set of remote stackable switches from a central location. "I'm always looking for solutions where it's simple," he said. "I don't have the time or the manpower to fix a lot of problems."

The Boston University Medical Center currently runs its network on chassis units. But Graham Ward, the director of network services at the facility, said he could see "the benefit of being able to stack box by box as our needs dictate."

Martha Young, an analyst at Enterprise Management Associates Inc. in Boulder, Colo., said she expects that stackable switches will gain in popularity as a "pay-as-you-grow" approach to networking.

"I see it as playing all the way up the food chain," Young said. "If you've got everything you want in a chassis contained in a stackable product, why wouldn't you take advantage of that?"

She added that users often fail to use up all of their chassis slots, burning out fans and power supplies for no reason.

Kerravala agreed, saying that now 3Com's challenge is to get the products to market and implemented to take advantage of this conceptual head start.

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BRIEFS

CA to Sell $600M In Convertible Notes

Computer Associates International Inc. plans to sell $600 million worth of convertible notes through a private offering. Islandia, N.Y.-based CA said it will use the proceeds to refinance some of the outstanding debt under its bank credit lines. The plan comes a month after CA canceled a $1 billion bond offering because of an impending reduction in its credit rating by New York-based Moody's Investors Service.

SAP Ties .Net, Java Tools to Web Software

SAP AG said it plans to ship during the second quarter a "dual-personality" version of its Web application server software that supports both Microsoft Corp.'s .Net development tools and IBM's Java-based WebSphere technology. SAP also said it acquired Israeli software vendor TopManage Financial Solutions Ltd. to boost its line of applications for small and midsize companies.

Sun Ships High-End Graphics Workstation

Sun Microsystems Inc. added a high-end workstation that is based on its UltraSPARC III chip and aimed at compute- and graphics-intensive uses. The dual-CPU Sun Blade 2000 starts at $10,995. Sun also announced a bundle of hardware and software for managing the identities of users on corporate networks or the Internet. The enterprise version starts at $149,995.

Short Takes

MICROSOFT plans to ship by year's end an update to its Windows CE .Net mobile operating system with added support for IP Version 6 and Short Messaging System technology. . . . Cambridge, Mass.-based software vendor ASPEN TECHNOLOGY INC. said David McQuillin will become its CEO effective Oct. 1.

Users Warm Up to Agile Programming

Widespread use is predicted, but some IT shops are wary

BY CAROL SLIWA
AMELIA ISLAND, FLA.

More than two-thirds of all corporate IT organizations will use some form of "agile" software development process within the next 18 months, Giga Information Group Inc. predicted last week at its application development conference here.

But so far, only a small percentage of corporations have latched on to any of the various emerging lightweight programming methodologies — such as Extreme Programming (XP), Scrum and Crystal — which gurus grouped under the umbrella term *agile* about a year ago.

Corporate users attending last week's conference generally showed interest in checking out only specific elements of agile approaches, which aim to help them attack projects that have unclear or rapidly changing requirements.

For instance, one of the more controversial elements of XP — pairing two programmers at a single workstation — appeals to Jeff Allen, a senior business analyst at the Riverview, Fla.-based fertilizer division of Minneapolis-based Cargill Inc. Allen said his group is switching from Microsoft Corp. development technologies to Sun Microsystems Inc.'s Java and that he can envision benefits to teaming a senior programmer with a junior one.

Walt Smith, chief architect at a large U.S.-based financial institution, said the need to produce higher-quality software more quickly will drive his firm to consider some agile approaches. "Customers want applications in 90 days now, no matter how complex they are, and you can't do that with traditional methods," he said.

Agile methodologies typically eliminate the extensive documentation process that can bog down a development project. Projects are broken down into pieces based on requirements. Functional code for each piece is delivered in short time frames — ranging from 14 to 90 days, depending on the methodology — and is subjected to frequent testing.

Smith, however, was skeptical that agile approaches will help reduce overall development costs. He said early experiments with elements of XP on departmental applications produced code that didn't integrate well with his company's overall infrastructure or scale in production.

"We spent a lot of money fixing those scalability problems," Smith said.

AT A GLANCE

The Agile Manifesto

- Individuals and interactions over processes and tools
- Working software over comprehensive documentation
- Customer collaboration over contract negotiation
- Responding to change over following a plan

SOURCE: THE AGILE ALLIANCE

Giga analyst Liz Barnett estimated that only 10% of corporate IT organizations now use agile processes, although she suspects that about 25% are exploring them. Barnett recommended that companies consider supplementing old processes with some of the newer agile approaches.

"I think they will have six or 10 different processes in a shop, and this will be one of them," Barnett said.

Jerzy Dutkiewicz, manager of architecture and integration at Sunoco Inc. in Philadelphia, said agile methodologies appear to be a rehash of the rapid development approaches his firm already takes. But he said some might work for small projects that don't have high scalability requirements.

Agile processes typically promote greater communication between developers and users, and Dutkiewicz said the continual feedback loop would be particularly helpful for companies hiring outside consultants. "If the consultant is incompetent or the technology is wrong, I get the first indication after 30 days," he said. "I'm cutting my losses quickly."

Peter Baker, director of applications at Norwalk, Conn.-based Emcor Group Inc., a construction firm that outsources most of its IT work, said he won't be seeking out consultants that use agile methodologies.

"It's just rebranding of classical project management," said Baker. He said bits and pieces of the various agile methodologies may provide some fine-tuning, but in general, "all these things, they're Project Management 101." ●

XP, Scrum Join Forces

Agile programming methods don't have to be used in isolation.

Trans Canada Pipeline Ltd. in Calgary, Alberta, for instance, is working with two consultancies to utilize XP and Scrum for several key software development projects, according to Ken Schwaber, president of one of the consultancies, Advanced Development Methods Inc. in Lexington, Mass.

"I think a lot of the different [agile] methods tend to borrow from each other," said Martin Fowler, chief scientist at the other consultancy, Chicago-based ThoughtWorks Inc., which does application development and integration work. "If a good idea pops up in one, it often gets adopted by others as well."

Schwaber, a Scrum co-creator, said it makes sense to combine Scrum and XP because Scrum focuses on management practices and XP centers on engineering practices for building object-oriented software. "We're trying to make up for the weaknesses in both of them to have a more complete process," he said, adding that XP is geared toward small projects, while Scrum can scale to larger projects.

Agile characteristics that XP and Scrum share include heavy user input, self-organizing teams that don't rely on management to tell them what to do and incremental delivery of functional code within short time frames, with test periods at the end of each iteration, Schwaber said. Both approaches also leave room for a project to change, rather than calling for a set of fixed application requirements.

Schwaber said Trans Canada asked his company and ThoughtWorks to work together to merge Scrum and XP. Trans Canada currently has 250 to 350 people working on three development projects: one for setting up and initiating customer contracts, another for allocating and invoicing pipeline usage and a third for managing land titles, he said.

Trans Canada couldn't be reached for comment.

Schwaber's firm calls the new hybrid approach XP@Scrum. He said XP@Scrum will be discussed at several development conferences this year, starting with Software Development West next month in San Francisco.

Another firm promoting the combined use of Scrum and XP is Brighton, Mass.-based Patient-Keeper Corp., whose chief technology officer is Jeff Sutherland, a co-creator of Scrum.

Mike Beedle, CEO of Chicago-based e-Architects Inc., also is documenting a Scrum/XP approach that he calls Xbreed.

– *Carol Sliwa*

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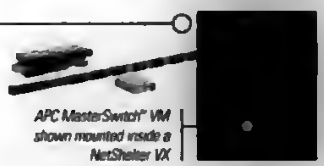
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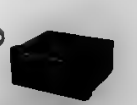
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Brokerage Launches Search Engine to Aid Call Center

Expects natural-language tool to spawn ROI

BY LUCAS MEARIAN

Discount brokea TD Waterhouse Group Inc. this month launched a natural-language search engine that's expected to help it handle a burgeoning number of inquiries to its call center and gain a greater share of its customers' wealth.

New York-based TD Waterhouse dropped a similar online search engine from Emeryville, Calif.-based Ask Jeeves Inc. because it considered the technology from Cambridge, Mass.-based iPhrase Technologies Inc. to be more up-to-date. The brokerage integrated the iPhrase engine more easily with its existing technology, according to Bob Cantelmo, senior vice president for e-channel products and services at TD Waterhouse.

"We were very confident with its ability to respond quickly and accurately to customers," he said. "Plus, it was an [enterprisewide] solution, which is always attractive. We don't have to roll it out to 20 or 30 affiliate sites, and I don't have to pay any more money to use my iPhrase solution."

Michele Mehl, a spokeswoman for Jeeves Solutions, the service arm of Ask Jeeves, said the natural-language search engine TD Waterhouse was using was Answers 2.0. Today, Ask Jeeves sells Version 5.0.

"In terms of integration, Answer 2.0 did take longer to integrate, but with the newer solution, it's easier to install," Mehl said. "In terms of an enterprise-based solution, in September we launched JeevesOne, which has a software license specifically for the enterprise."

Although be wouldn't discuss specific dollar amounts, Cantelmo said he's confident that iPhrase's One Step software will produce a return on iovestment because the system will cost less than having TD Waterhouse's call center representatives answer questions. This way, "customers can truly ask a questioo and get it answered with a minimal amount of clicks," leading to greater customer retention, he said.

"If a customer asks 'How do I find out my balance?' the iPhrase solution will bring the customer right to the balance page rather than giving them a link to the page," said Joe Kubikowski, TD Waterhouse's first vice president for marketing and business development.

According to Frost & Sullivan Inc., a consulting firm in Oakland, Calif., it costs approximately $30 for a call center representative to respond to each customer question, compared with $8 for an e-mail response and 10 cents for an automated search engine response.

The iPhrase software is configured with analytics that will produce reports based on customer questions, allowing IT managers to adjust Web cootent based oo customer needs.

TD Waterhouse spent just six weeks installing the iPhrase software after spending "a lot of time on due diligence," Cantelmo said.

In contrast, Charles Schwab & Co. speot nine months fine-tuning the iPhrase software before it installed the package in May. The San Francisco-based brokerage said it's now saving about $125,000 per month in IT and call center costs.

"It exceeded our expectations, just by the reaction we got initially from our employees during our three-month pilot," said Leigh Hood, director of technical product development at Schwab.

A Natural Search

The natural-language search engine TD Waterhouse is using for customer queries gives it the following capabilities:

- The ability to understand concepts for highly accurate responses.
- The ability to take the user directly to an existing page or build a new one on the fly.
- Secure access to information, which enables the brokerage to customize search results based on the user's log-in status. (For example, customers can ask questions about their portfolios.)
- In-depth analytics that turn customers' questions into feedback.

IT Benchmarking Is Aid In Measuring Investments

Comparative study can help deliver returns, say users

BY LUCAS MEARIAN

A big shortcoming of IT managers is that they ofteo fail to communicate how important their departments are to their companies — something that isn't easy for them to do, because they rarely beochmark projects to measure IT investments, according to a Meta Group Inc. report released last week.

During a teleconference that focused on benchmarking the performance of IT portfolios, analysts at Stamford, Conn.-based Meta focused on IT organizations that have made developing performance measurement programs a priority. Meta cited businesses such as The Boeing Co., Conoco Inc. and Ford Motor Co. as examples.

Benchmarkiog techniques such as scenario planning, real options analysis and process simulation can help deliver significant returns on investment, said Meta analyst Karen Rubenstrunk. Companies that do IT benchmarking can have "a very large impact on their ability to constantly perform and transform [themselves]," she said.

Jane Landon, CIO for institutional business at Prudential Financial in Newark, N.J., is one IT manager who has heeded the benchmarking call. Landon said she performs IT henchmarking on an annual basis to determine whether her group is "way over or way under" the mark on IT spending and technology initiatives.

While Landon has used comparative benchmarking information feeds from companies such as IBM, she said those services don't provide "a good sense as to how serious and how much knowledge the people have who are inputting the information."

Instead, Landon said, she prefers to rely on Big Five consulting firms to conduct detailed performance analyses and develop "some level of normalization" against other companies in the insurance industry.

As an example of most IT shops' lack of benchmarking data, Rubenstrunk cited the inability to quantify how server downtime affects a company's business operations. "You ask IT people and they don't know," she said.

Packaged software may also help. For example, the University of Nebraska-Lincoln's IT department two years ago began using software developed by Portland, Ore.-based ProSight Inc. that can count technology assets and automate project tracking.

University CIO Walter Weir said having a software package that can track the status of IT projects in different stages of development won him an additional $1 million in his budget last year because it made it easier for him "to prove I was a good steward of money."

Show Me the Money

Here are some examples of financial losses that industries would experience if they lacked IT shops:

INDUSTRY SECTOR	LOSS OF REVENUE/ HOUR	REVENUE EMPLOYEE/ HOUR
[redacted]	$2,817,846	$569.20
[redacted]	$2,066,245	$186.98
[redacted]	$1,610,654	$134.24
[redacted]	$1,495,134	$1,079.89
[redacted]	$1,344,461	$184.03
[redacted]	$1,202,444	$370.92
[redacted]	$1,107,274	$244.37
[redacted]	$1,062,252	$167.53
[redacted]	$896,802	$130.52
[redacted]	$804,192	$153.10

SOURCE: THE META GROUP INC., STAMFORD, CONN.

Brokerage Launches Search Engine to Aid Call Center

Expects natural-language tool to spawn ROI

BY LUCAS MEARIAN

DISCOUNT BROKER TD Waterhouse Group Inc. this month launched a natural-language search engine that's expected to help it handle a burgeoning number of inquiries to its call center and gain a greater share of its customers' wealth.

New York-based TD Waterhouse dropped a similar online search engine from Emeryville, Calif.-based Ask Jeeves Inc. because it considered the technology from Cambridge, Mass.-based iPhrase Technologies Inc. to be more up-to-date. The brokerage integrated the iPhrase engine more easily with its existing technology, according to Bob Cantelmo, senior vice president for e-channel products and services at TD Waterhouse.

"We were very confident with its ability to respond quickly and accurately to customers," he said. "Plus, it was an [enterprisewide] solution, which is always attractive. We don't have to roll it out to 20 or 30 affiliate sites, and I don't have to pay any more money to use my iPhrase solution."

Michele Mehl, a spokeswoman for Jeeves Solutions, the service arm of Ask Jeeves, said the natural-language search engine TD Waterhouse was using was Answers 2.0. Today, Ask Jeeves sells Version 5.0.

"In terms of integration, Answer 2.0 did take longer to integrate, but with the newer solution, it's easier to install," Mehl said. "In terms of an enterprise-based solution, in September we launched JeevesOne, which has a software license specifically for the enterprise."

Although he wouldn't discuss specific dollar amounts, Cantelmo said he's confident that iPhrase's One Step software will produce a return on investment because the system will cost less than having TD Waterhouse's call center representatives answer questions. This way, "customers can truly ask a question and get it answered with a minimal amount of clicks," leading to greater customer retention, he said.

"If a customer asks 'How do I find out my balance?' the iPhrase solution will bring the customer right to the balance page rather than giving them a link to the page," said Joe Kubikowski, TD Waterhouse's first vice president for marketing and business development.

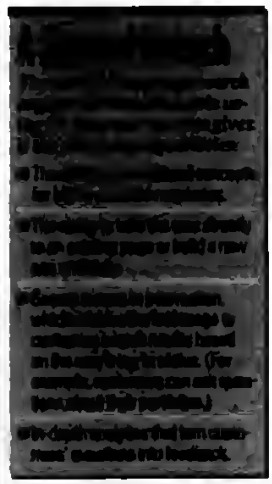
According to Frost & Sullivan Inc., a consulting firm in Oakland, Calif., it costs approximately $30 for a call center representative to respond to each customer question, compared with $8 for an e-mail response and 10 cents for an automated search engine response.

The iPhrase software is configured with analytics that will produce reports based on customer questions, allowing IT managers to adjust Web content based on customer needs.

TD Waterhouse spent just six weeks installing the iPhrase software after spending "a lot of time on due diligence," Cantelmo said.

In contrast, Charles Schwab & Co. spent nine months fine-tuning the iPhrase software before it installed the package in May. The San Francisco-based brokerage said it's now saving about $125,000 per month in IT and call center costs.

"It exceeded our expectations, just by the reaction we got initially from our employees during our three-month pilot," said Leigh Hood, director of technical product development at Schwab. ◗



IT Benchmarking Is Aid In Measuring Investments

Comparative study can help deliver returns, say users

BY LUCAS MEARIAN

A big shortcoming of IT managers is that they often fail to communicate how important their departments are to their companies — something that isn't easy for them to do, because they rarely benchmark projects to measure IT investments, according to a Meta Group Inc. report released last week.

During a teleconference that focused on benchmarking the performance of IT portfolios, analysts at Stamford, Conn.-based Meta focused on IT organizations that have made developing performance measurement programs a priority. Meta cited businesses such as The Boeing Co., Conoco Inc. and Ford Motor Co. as examples.

Benchmarking techniques such as scenario planning, real options analysis and process simulation can help deliver significant returns on investment, said Meta analyst Karen Rubenstrunk. Companies that do IT benchmarking can have "a very large impact on their ability to constantly perform and transform [themselves]," she said.

Jane Landon, CIO for institutional business at Prudential Financial in Newark, N.J., is one IT manager who has heeded the benchmarking call. Landon said she performs IT benchmarking on an annual basis to determine whether her group is "way over or way under" the mark on IT spending and technology initiatives.

While Landon has used comparative benchmarking information feeds from companies such as IBM, she said those services don't provide "a good sense as to how serious and how much knowledge the people have who are inputting the information."

Instead, Landon said, she prefers to rely on Big Five consulting firms to conduct detailed performance analyses and develop "some level of normalization" against other companies in the insurance industry.

As an example of most IT shops' lack of benchmarking data, Rubenstrunk cited the inability to quantify how server downtime affects a company's business operations. "You ask IT people and they don't know," she said.

Packaged software may also help. For example, the University of Nebraska-Lincoln's IT department two years ago began using software developed by Portland, Ore.-based ProSight Inc. that can count technology assets and automate project tracking.

University CIO Walter Weir said having a software package that can track the status of IT projects in different stages of development won him an additional $1 million in his budget last year because it made it easier for him "to prove I was a good steward of money." ◗

Show Me the Money

Here are some examples of financial losses that industries would experience if they lacked IT shops:

INDUSTRY SECTOR	LOSS OF REVENUE/ HOUR	REVENUE EMPLOYEE/ HOUR
[redacted]	$2,817,846	$569.20
[redacted]	$2,096,245	$196.98
[redacted]	$1,610,654	$134.24
[redacted]	$1,495,134	$1,079.89
[redacted]	$1,344,461	$184.03
[redacted]	$1,202,444	$370.92
[redacted]	$1,107,274	$244.37
[redacted]	$1,082,252	$167.53
[redacted]	$996,902	$130.52
[redacted]	$804,192	$153.10

SOURCE: THE META GROUP INC., STAMFORD, CONN.

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BRIEFS

Downbeat Oracle Cuts Q4 Sales Forecast

One week after warning that the results for its third quarter, ended Feb. 28, would be below expectations, Oracle Corp. announced that its profits for the period totaled $508 million on revenue of $2.2 billion. Both numbers were down from their year-earlier levels. The company also cut its sales and profit forecast for the fourth quarter because it said it doesn't see any sign that corporate IT spending is improving.

Panel: Andersen Should Limit IT Work

An independent review board created last month by Chicago-based Andersen said in a report that the controversial firm should stop offering services that aren't related to its flagship auditing work, including most of its IT consulting activities. Andersen should continue to do IT-related work only for small and mid-size companies, the board said.

AMD Plans Production Shift, New Athlons

Semiconductor maker Advanced Micro Devices Inc. announced new versions of its Athlon processor for use in PCs, servers and workstations. Sunnyvale, Calif.-based AMD also said it plans this month to start shipping Athlon XP chips built using 0.13-micron manufacturing technology. That emulates a shift to 0.13-micron production processes that's under way at rival Intel Corp.

Short Takes

HEWLETT-PACKARD CO. and seven scientific and academic institutions said that they're teaming up to support development of Linux systems based on Intel's 64-bit Itanium chips. . . . Ottawa-based COREL CORP. completed its acquisition of Toronto-based XML technology developer SOFTQUAD SOFTWARE LTD.

Wireless LANs Envisioned For 'Drive-by' Downloads

Effort under way to equip cars with Internet access using 802.11a technology

BY BOB BREWIN

AUTOMAKERS, toll-road authorities and public safety officials are starting to lay the groundwork for deployment of technology that could make every car and truck manufactured in North America the hub of a built-in, high-speed wireless LAN system.

The in-vehicle wireless technology is based on a licensed Digital Short Range Communication (DSRC) system designed to support automatic toll payment and safety applications, which could even enable emergency vehicles to change traffic lights. And since DSRC operates in the 5-GHz band, which is also used by unlicensed 802.11a wireless LANs (WLAN), DSRC backers envision wide-scale production of dual-band chips.

These chips could support safety applications and open up communications options for drivers that range from downloading entertainment while fueling to checking e-mail when in range of a DSRC/WLAN base station.

Among the automakers, the effort is being led by DaimlerChrysler AG. Chris Wilson, manager of telematics and safety at the Palo Alto, Calif.-based research division of DaimlerChrysler, said that while his primary DSRC focus is on safety, he also believes the built-in WLAN capabilities offer numerous information-access opportunities for both commercial fleet operators and private vehicle owners.

Truck operators could use a built-in WLAN to help automate document processing at the Canadian and Mexican borders, which are currently logjammed by extra security measures, Wilson said. Drivers could also use DSRC/WLAN access points to grab information on the fly — at a gas station, a turnpike service area or just driving down the road — in an information exchange session that Wilson called "drive-by info fueling."

An American Society of Standards and Materials International DSRC committee is putting the final touches on a DSRC standard this month. The committee comprises automakers, oil companies, chip manufacturers and key toll-road operators, including the New York State Thruway Authority.

Lee Armstrong, a Boston-based consultant who is chairman of the committee, said he envisions the WLAN vehicle of the future as being able to support a wide range of functions, including "anything you can do on the Internet." Proponents claim that a DSRC/WLAN system will be in place within seven to 10 years.

Though relatively short-range — one kilometer maximum — the DSRC/WLAN standard could compete with wide-band third-generation data networks planned by cellular carriers, experts said. Armstrong acknowledged that there "could be an overlap with cellular."

Sheung Li, a product line manager at Atheros Communications Inc. in Sunnyvale, Calif., said he has no doubt that his firm can develop an affordable chip set. Atheros is designing support for the DSRC band into its industry-standard 802.11a chips, so it will cost "just cents" extra to produce a dual-band chip, Li said.

Wilson acknowledged that much work needs to be done to get solid buy-in from uncommitted automakers and toll authorities. "We still have a lot of hoops to go through," he said.

AT A GLANCE

DSRC Details

Approved by the FCC in 1999, the Dedicated Short Range Communication system:

- Uses 75 MHz of spectrum to support vehicle-to-roadside communications.
- Is in a band adjacent to Unlicensed National Information Infrastructure (U-NII) 802.11a wireless bands.
- Has functionality that can be added to U-NII band chip sets at a cost of cents per chip.

Exxon Mobil Plans to Extend Use of Speedpass Technology

Backers of the DSRC standard say gas stations will eventually install DSRC-based dual-band radios with wireless LANs to pump information to customers as they pump gas. But Exxon Mobil Corp. said it plans to keep its focus on extending the reach and utility of its own, simpler Speedpass technology.

Irving, Texas-based Exxon Mobil uses the Speedpass token – usually carried on a key ring – to allow customers to fill their tanks with a wave of the token at a gas-pump sensor. The Speedpass stores customer details on a small chip.

When waved over the sensor, a short-range wireless link operating at 134 KHz starts an automatic activation and authorization process, and the total purchase is then charged to a preapproved credit card. Speedpass can also be used for purchases in Exxon and Mobil gas station convenience stores.

In addition to the 7,000 Exxon and Mobil stations in the U.S. and Canada where Speedpass can be used, Oak Brook, Ill.-based McDonald's Corp. started a test of Speedpass at more than 400 of its Chicago-area restaurants last year. Joe Giordano, vice president of business and product development for Speedpass, said he plans to spread the technology well beyond its core gas-station business.

"We're developing relationships with lots of retailers, and we want to be their customer identification and payment system," he said. "We offer a retailer a very efficient way to handle cashless payments, in a very secure and very privacy-sensitive manner."

Speedpass has also started to diversify the kind of wireless tokens it uses beyond the radio frequency identification key-ring tags. Last month, Timex Corp. in Middlebury, Conn., introduced the first watch with an embedded Speedpass module. Giordano said other devices that could eventually sport Speedpass modules include cell phones and personal digital assistants. "Almost any kind of [electronic] device could be Speedpass-enabled," he said.

Exxon Mobil is also exploring the use of a higher frequency for Speedpass – 1,356 MHz – that would provide it with a higher data rate. Moreover, Speedpass might use infrared as well as radio frequency technology, Giordano said.

Exxon Mobil believes that although Speedpass is a simple technology compared with DSRC systems, it's ideal because it "allows us to communicate in a personalized manner with the customer," Giordano said. "We're not interested in communications back and forth from the car," he added.

– Bob Brewin

Quick Link For more information about wireless and mobile technologies, visit our Web site.
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Users: Security Flaws Won't Mar Linux

Corporate confidence in OS still intact

BY TODD R. WEISS

Although two potential security vulnerabilities affecting the Linux operating system have surfaced in the past three weeks, analysts and users say the discoveries shouldn't erode confidence in Linux as a secure and economical alternative to Windows and Unix.

"I don't think we have any concern in particular about [choosing] Linux," said Matt Fahrner, manager of network services at Burlington Coat Factory Warehouse Corp. The Burlington, N.J.-based retailer of coats, clothing and other consumer goods moved to Linux in 2000 for much of its retail IT infrastructure.

Fahrner said he has found the Linux community to be far more responsive than traditional operating system vendors when security issues have cropped up. Linux fixes and patches are issued quickly and publicly, he said. "We haven't found [the news of vulnerabilities] as something that now dissuades us from the operating system," Fahrner said.

Last week, a security flaw affecting Linux was found in the widely used Zlib file-compression library, which helps speed network file transfers. The flaw in a memory allocation routine could provide a path for an attacker to send malicious code and take root control of a Linux system.

Three weeks ago, a vulnerability was reported in a Netfilter firewall component used in various versions of the Linux kernel. The Netfilter flaw could result in open ports that would allow intrusions by hackers.

"There's a period of shakeout that every [operating system] goes through," said Eric Hemmendinger, an analyst at Aberdeen Group Inc. in Boston. "I don't think this will cause people to say, 'Oops, this isn't what we thought it would be.' "

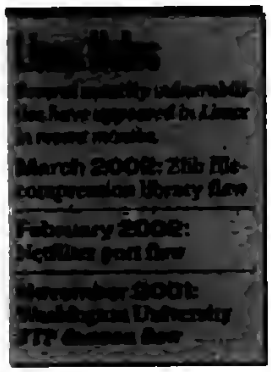
Many other widely used operating systems, including IBM mainframe software, commercial Unix products and Windows NT, have "gone through a period of security vulnerability issues, but they've been resolved," he said.

Brian Dewey, a network engineer at retailer Raymour & Flanigan Furniture Co. in Syracuse, N.Y., said he isn't worried about the recent Zlib and Netfilter issues, even though he has used Linux for the past two years for point-of-sale terminals in 50 stores and in firewalls and other back-end systems. Dewey said he's satisfied that Linux fixes are posted quickly. His company is now installing the Zlib patches and updating its Red Hat Inc. Linux software from Version 6.2 to Version 7.2.

"There is no such thing as an unbreakable product," said Dan Kusnetzky, an analyst at IDC in Framingham, Mass. Users are more interested that their Linux vendors take quick action to announce and post fixes for new vulnerabilities, he said.

"The fact that something has shown up is not a major negative [for Linux]," he added. ◗

Quick Link Visit our Linux special coverage page at www.computerworld.com/s/topic/89



U.S. Readies Plan for Protecting Key Systems

Schmidt: Update that's due this summer based on input from corporate executives

BY DAN VERTON

SIX MONTHS to the day after the Sept. 11 terrorist attacks, Howard Schmidt, vice chairman of the president's Critical Infrastructure Protection Board, said the government is close to releasing an updated plan for protecting the nation's most critical systems and networks.

Schmidt, former chief security officer at Microsoft Corp., said a new national plan for information systems protection will be released this summer. The document will supercede an earlier plan released by the Clinton administration in 2000 and will be based largely on input from private-sector companies, according to Schmidt and earlier statements made by Richard Clarke, the president's principal adviser for cybersecurity. Schmidt spoke March 11 during a live webcast sponsored by *Network World* magazine, a sister publication of *Computerworld*.

National Security Council experts are poring through more than 127 questions and issues raised by companies that operate the bulk of the critical infrastructure in the U.S., including the telecommunications grid, power stations and banking and finance networks, said Schmidt.

In addition to detailing the progress of the national security plan, Schmidt outlined three priorities that have taken shape since the presidential advisory board was established in the wake of the Sept. 11 attacks: establishing the Cyber Warning Information Network (CWIN), which would enable authorities to "short-circuit viruses" and other attacks at the boundaries of critical networks; focusing more on research and development to increase the lead time on identifying future threats; and improving education, including at the primary grade level, on ethical principles and computer use.

Although terrorists are thought to have used the Internet primarily as a communications mechanism thus far, there are fears that future attacks could be accompanied by cyber-based incidents. "We never know whose fingers are on the keyboard on the other end," said Schmidt. The Bush administration is working with G8 member countries to establish treaties to facilitate prosecutions for international cybercrimes, said Schmidt.

And while he's satisfied that progress has been made by the companies that are responsible for protecting critical systems in the U.S., Schmidt said the Bush administration has a "particular concern" about the telecommunications grid and banking and finance systems that people rely on daily. ◗

INS Visa Snafu Raises New IT Questions

The U.S. Immigration and Naturalization Service (INS) continues to grapple with criticism about its IT infrastructure after an embarrassing incident last week in which student visa approval letters were issued for two of the 19 Sept. 11 terrorists.

The visas were approved last summer for Mohamed Atta and Marwan Alshehhi, who both participated in the attacks, according to the government. But because of backlogs at the INS, which still does much of its student visa processing on paper, letters of approval didn't go out until last week to the flight schools where the men were enrolled.

An INS spokesman in Washington refused to comment on the incident or procedures at the INS.

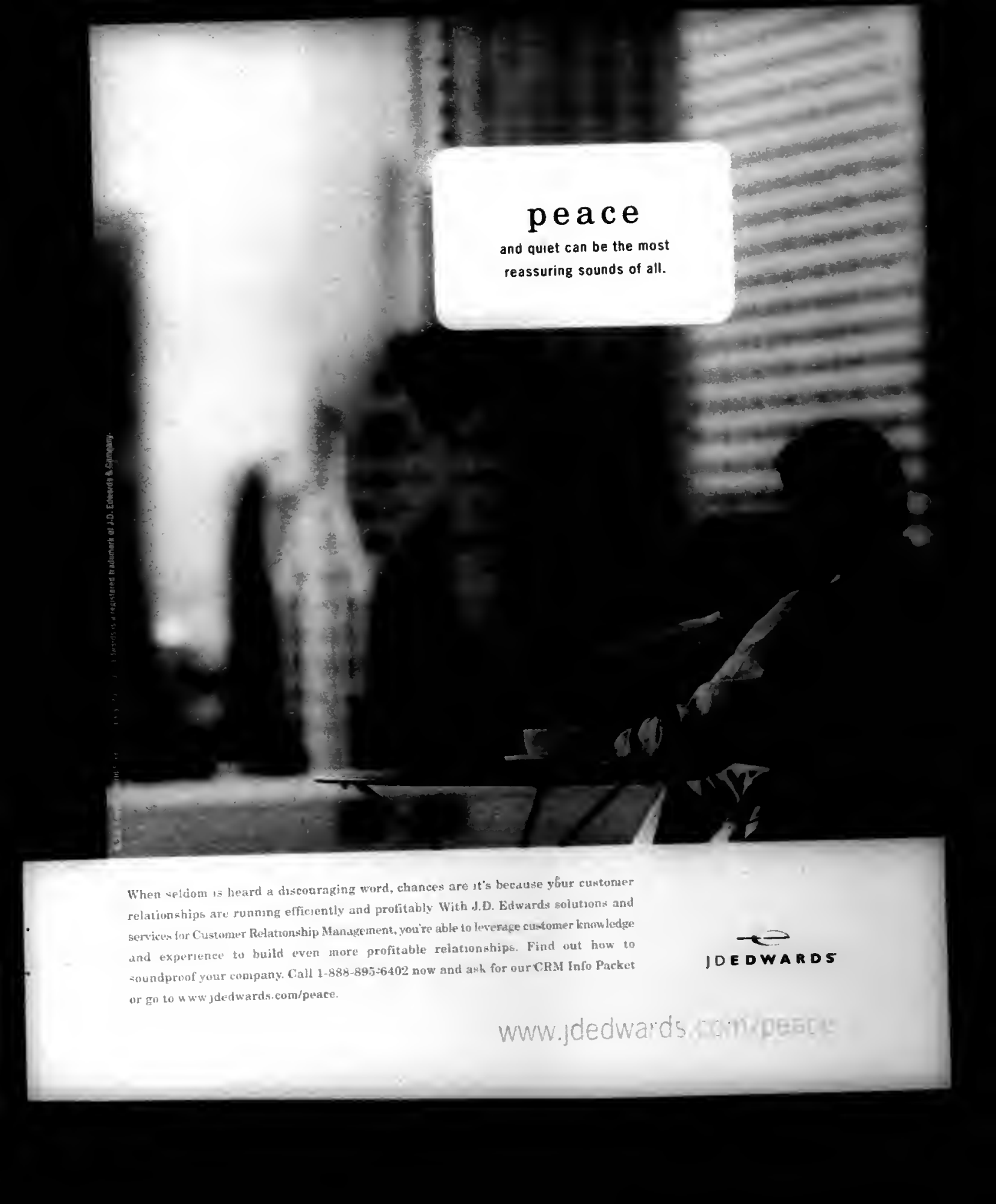
In a prepared statement, the INS confirmed that the two suspects had filed requests to change their nonimmigrant status from visitor to student. Both men would have received approval notices immediately after they were given their new status, according to the INS. Separate notices to the schools were issued later, after the approval data was manually entered at a facility that has a contract with the INS, according to the agency.

"It is important to emphasize that the decisions regarding the request to change status were made in the summer of 2001, prior to the tragic events of September 11," the INS said in the statement. "It is equally important to recognize that when the applications were approved, the INS had no information indicating that Atta or Alshehhi had ties to terrorist organizations."

In October, the U.S. General Accounting Office was highly critical of the INS's procedures and IT infrastructure in a report to a House subcommittee. "The lack of adequate information technology systems has significantly impacted INS's ability to perform its core missions," said Richard Stana, director of justice issues at the GAO, in his statement to the subcommittee.

U.S. Sen. Majority Leader Tom Daschle (D-S.D.) harshly criticized the issuance of the student visa letters during a press conference last week in Washington. "I, for the life of me, I can't understand how something like that can happen," Daschle said. "It's a major embarrassment, and it's a recognition that we still have a lot of work to do."

– *Todd R. Weiss*



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Rivals Add CRM Applications for Mobile Users

BY MARC L. SONGINI

Software rivals Siebel Systems Inc. and PeopleSoft Inc. continued their separate pushes into the realm of mobile customer relationship management (CRM) last week.

Both companies announced applications geared toward connecting mobile sales and service workers to corporate CRM systems and touted their scalable data synchronizatioo capabilities.

CRM market leader Siebel in San Mateo, Calif., added a set of mobile applications to the Web-based Siebel 7 product line that it released io November. Siebel 7 Mobile Solutions includes software that supports access to CRM data via mobile phones, handheld devices and notebook PCs, the company said.

PeopleSoft io Pleasanton, Calif., meanwhile, announced an upgrade of its Web-based PeopleSoft 8 CRM applications. Release 8.4 adds mobile sales and field service modules to the PeopleSoft 8 CRM line, which was introduced in June.

PeopleSoft, which got into the CRM market by acquiring Vantive Corp. in 2000, is positioning Release 8.4 as the versioo that closes the remaining functional gaps between its applications and those of its rivals.

Market Targets

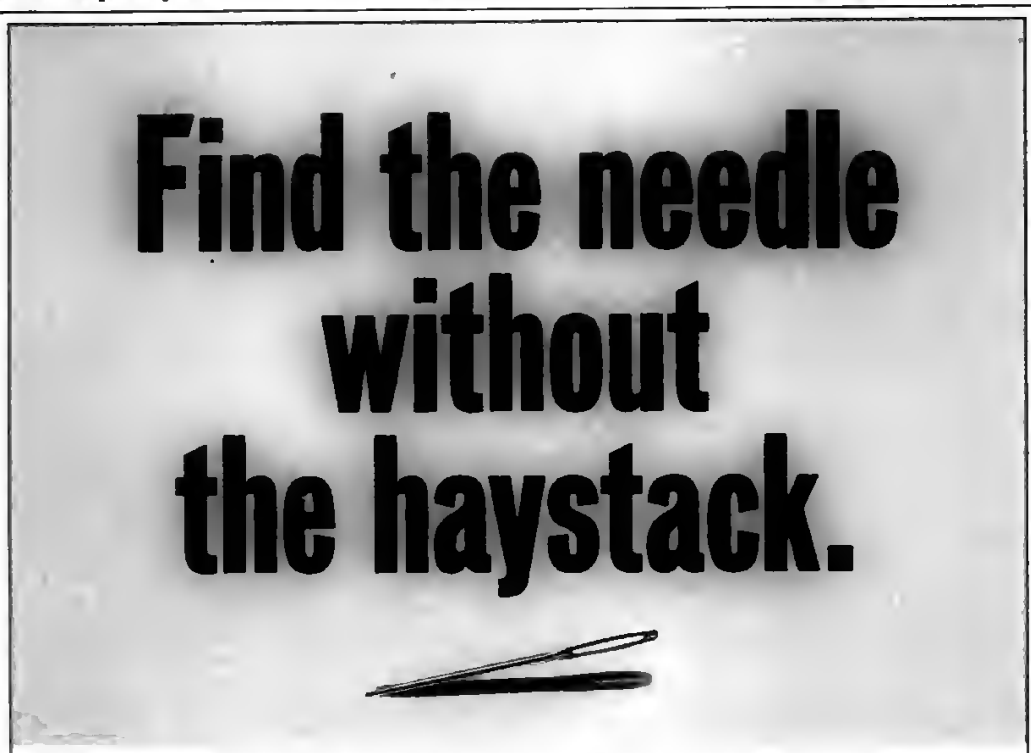
The new release is a key part of PeopleSoft's effort to broaden the appeal of the CRM applications within the large installed base of companies that use its enterprise resource planning software, said Joshua Greeobaum, an analyst at Enterprise Applications Consulting in Daly City, Calif.

Siebel's announcement was aimed at reminding users that it has "the biggest, broadest, deepest set of mobile CRM functionality in the industry," said Erin Kinikin, an analyst at Giga Information Group Inc. in Cambridge, Mass. But, she added, Siebel's wireless messaging capabilities aren't as interactive as PeopleSoft's.

PeopleSoft is scheduled to ship the upgrade on March 22, along with new mobile data syochrooizatioo technology that supports Windows-based laptops and Pocket PC handheld devices.

Stan Swete, general manager of CRM at PeopleSoft, said Release 8.4 also includes interactive software that lets salespeople or a company's customers dynamically configure products, plus a new module that automates the process of tracking product defects.

Siebel 7 Mobile Solutions is available immediately. Siebel said the software lets multiple mobile end users access the same CRM applications and then centrally synchronizes and updates the data.



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Stimulus Package May Not Spur IT Spending

Users say equipment depreciation bonus won't affect short-term budgeting

BY PATRICK THIBODEAU

SEVERAL IT managers last week said a depreciation bonus included in the economic stimulus bill that President Bush signed into law March 9 will help cut capital equipment costs. But, they added, it isn't likely to change their IT spending plans right away.

Dennis Roell, IT manager at Betts USA Inc. in Florence, Ky., said the depreciation bonus might induce him to make a quicker turnaround on purchases of computers and other devices in subsequent years.

A big IT concern "is being able to move on to new equipment when you need to," Roell said. "If you're still waiting for things to depreciate, it just drags on how long it takes to get the new equipment." But Betts USA, which makes toothpaste tubes and other products, plans to stick with the IT budget it has already set for this year, Roell said.

The stimulus bill provides a temporary 30% depreciation bonus to be taken in the year a purchase is made. The bonus, which is retroactive to Sept. 10 and will remain in effect until Sept. 11, 2004, would be on top of the 20% annual depreciation that's typically applied to high-tech equipment.

The IT industry hopes that accelerated write-offs will lead to faster upgrades. But like Roell, other users said the tax benefit won't drive short-term IT spending decisions.

Speeding up the depreciation process "will make the calculatinns for return on investment obviously slightly better," said Ashok Bakhshi, IT director at Schindler Elevator Corp. in Morristown, N.J. "But this will not force us to make any decision [on new purchases]."

Framingham, Mass.-based IDC estimates that total U.S. IT spending will increase 4.6% to $456 billion this year, after shrinking 1.8% last year. The stimulus bill could add another percentage point of growth, said Kevin White, an economist at IDC. But the main inhibitor to spending has been the economy and its impact on corporate profits, he said.

Howard Rubin, an analyst at Meta Group Inc. in Stamford, Conn., said many companies are focused on lowering business costs. "They can't spend money to save money, and most of them are in the save-money mode," he said. "And I don't think the stimulus bill answers that in the short term."

Ron Wells, informatinn systems director at Carolina Turkeys Inc. in Mount Olive, N.C., said the depreciation bonus won't change his IT investment plans. "If we can get a benefit, that would be nice," Wells said. "[But] to say that I would buy more and more frequently because of the depreciation ... probably not."

Quick Link: For more coverage of government policies that affect IT, visit the Watching Washington page on our Web site at: www.computerworld.com/q?vt300

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Phillips Gives Petroleum Blending Software the Gas

Apps should cut costs, help it meet environmental regs

BY MARC L. SONGINI

Phillips Petroleum Co. is installing new applications that are expected to help its refinery operations comply with toughening federal environmental regulations on gasoline and lower its supply chain and manufacturing costs.

Bartlesville, Okla.-based Phillips started work on the project last mooth at its Ferndale, Wash., refinery. The company hopes the process planning and optimization software, developed by Cambridge, Mass.-based Aspen Technology Inc., will make it easier for the refinery to reduce the amount of sulfur in its gasoline in time to comply with regulatory requiremeots that take effect in 2004.

Phillips, a longtime user of Aspeo Technology's process modeling, design and optimizatioo tools, hopes the new applications will better automate the quality control, blend-planning and scheduling processes at the Ferndale facility. The software will also make it possible for workers who aren't part of the company's production planning staff to control the refining process.

The Windows NT-based system is scheduled to go into use during the summer. Phillips declined to disclose the expected cost of the project.

The use of software to monitor safety or regulatory compliance for activities such as plant maintenance is fairly widespread, said Dick Hill, an analyst at Dedham, Mass.-based ARC Advisory Group Inc. But Hill said the federal government is writing stricter environmental rules for the petroleum and energy industries and enforcing them with more severity, increasing the demand for sophisticated process automatioo tools within plants.

ASPEN BLEND
A tool that controls the blending of materials used in process manufacturing operations.

ASPEN PIMS-MBO
A front-end user interface that plant workers can use to make blending decisions.

The process control systems used by companies such as Phillips have to be able to handle multiple variables, Hill noted. For example, gasoline has to comply with environmental rules, but refiners also need to be sure they adhere to a complex blending process in order to get proper combustion.

To fulfill such requirements, Phillips plans to tie the Aspen Technology software to other process control tools in the Ferndale refinery, such as one that monitors tank levels. That should let the company evaluate how the refining process is going and help it to get the maximum potential amount of refined gasoline from each barrel of crude oil, said Jason James, a gasoline blender and clean product scheduler at the refinery.

Without the software, complying with the upcoming regulations would be more complicated because refinery workers would have to check gasoline samples and then manually make changes to the blending systems, he added.

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Source: "Quantifying The Business Value Of Infrastructure Management An Empirical ROI Study." IDC, 2001

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Refined Software

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BRIEFS

Avaya Sets Layoffs, Cuts Sales Outlook

Networking equipment vendor Avaya Inc. reduced the revenue forecast for its second quarter ending March 31 and announced plans to lay off 6% of its workers. About 1,900 people will lose their jobs as part of the cutbacks, the latest in a series of restructuring moves at Basking Ridge, N.J.-based Avaya. Second-quarter revenue is now expected to total up to $1.20 billion.

Lucent Expects Losses, Lower Q2 Revenue

Lucent Technologies Inc., Avaya's former parent company, also cut the revenue projections for its second quarter ending March 31. In addition, Murray Hill, N.J.-based Lucent said that ongoing business uncertainties will likely prevent it from meeting a goal of returning to profitability during its current fiscal year. But Lucent added that it has enough cash to fund its operations.

SEC Seeks Info From Qwest, WorldCom

Denver-based Qwest Communications International Inc. and WorldCom Inc. both said they were asked by the Securities and Exchange Commission (SEC) to voluntarily provide documents related to their accounting procedures. The two telecommunications firms said they will cooperate fully and added that they believe their policies comply with all applicable laws.

Short Takes

EMC CORP. in Hopkinton, Mass., sold its line of performance management tools for SAP AG's R/3 applications to PRECISE SOFTWARE SOLUTIONS INC. in Westwood, Mass. . . . ASCENTIAL SOFTWARE CORP. in Westboro, Mass., said it's buying VALITY TECHNOLOGY INC., a Boston-based developer of data-cleansing tools, for $82 million.

Novell in Transition Mode as Users Gather

Acquisition issues, management changes, ongoing product shift will color conference

BY MICHAEL MEEHAN

AS NOVELL INC holds its annual BrainShare user conference this week in Salt Lake City, the software and IT services vendor remains in transition on several fronts.

The conference is the first for Novell and its users since the company acquired Cambridge, Mass.-based IT consulting firm Cambridge Technology Partners Inc. in July as part of a plan to reduce its reliance on sales of packaged software.

The conference also follows several senior management changes at Novell during the past three weeks. In the biggest move, the company brought back former executive Christopher Stone to take over operations such as engineering, marketing and consulting.

Meanwhile, within its software business, Novell has shifted from a NetWare-centric strategy to one that focuses heavily on directory services and systems management tools. The company last week added a version of its ZENworks software that manages handheld devices, and it plans to announce several products that don't touch on NetWare at this week's conference (see box).

A More Open Strategy

As part of its change in strategy, Novell has spent the past year enabling its key products to work in a heterogenous world. The ZENworks management tool for PCs is now operating-system-agnostic, and Novell last summer uncoupled its eDirectory software from NetWare, giving users a single point of access to all networked applications and services.

The open question, however, is whether Novell has been able to get users to recognize its newfound openness.

"People naturally believe if you buy something from Novell, you've got to have NetWare to run it," said Earl Perkins, an analyst at Meta Group Inc. in Stamford, Conn. "The truth is, they play in a lot of sandboxes these days, but they haven't gotten that word out."

Perkins said Novell's ultimate goal is to support single sign-on capabilities across multiple operating systems. "They say they've got it licked, but I'm not sure *I* believe them," he said. "That's one of the things I'm going to be interested to see at BrainShare."

James Taylor, president of The East Cobb Group in Marietta, Ga., and chairman of his region's Novell user group, said he hopes to see more Linux desktop support from the company. Novell's software is "tied too much to Windows," Taylor said.

Sharing Plans At BrainShare

Novell is expected to announce the following products this week:

- **ZENWORKS SYNERGY:** Management software that delivers personalized content and applications to fat, thin or Web-based-client systems.
- **WORKSPACE:** A Web-based collaboration tool that gives project team members a personalized view of their work.
- **EDIRECTORY 8.7 PUBLIC BETA:** An upcoming test version of the next release of the company's directory software.

Server Vendors Tout Xeon Systems as Unix Alternative

IBM, Unisys, HP to use Intel's new multiprocessing chip

BY JENNIFER DiSABATINO

Intel Corp. last week released versions of its Xeon processor for use in midrange and high-end servers, and several top hardware vendors detailed plans to roll out Windows-based systems built around the multiprocessing-oriented chips.

IBM and Blue Bell, Pa.-based Unisys Corp. both announced Xeon MP-based servers as potential alternatives to Unix machines in corporate data centers. IBM's eServer x440 will support 16 processors by July, while Unisys said it will ship a Xeon MP-based version of its ES7000 server next month.

Hewlett-Packard Co. also got into the Xeon MP act, saying it plans to ship by mid-May a pair of rack-mountable midrange servers that can be configured with as many as four of the chips. A spokeswoman at Dell Computer Corp. said the company will announce its own Xeon MP-based servers within the next few weeks.

The release of the new processors "is a big jump for the Xeon line," said Mark Melenovsky, an analyst at IDC in Framingham, Mass. The chips narrow the performance gap between Intel's technology and the processors used to power Unix systems, he said.

But most users will gradually move from Unix to Xeon MP-based servers, Melenovsky added. "It's going to be costly to rewrite applications," he said. "Where we will see a difference is in new applications." Once those are in place, there could be a transition to Xeon machines over time.

AT A GLANCE

Xeon Roll Call

Servers that will use Intel's new chips include the following:

IBM's x440 starts with four processors and will support as many as 16 by July. Pricing for a 16-CPU system starts at $102,500.

Unisys' ES7000/200 can handle as many as 32 processors. Pricing ranges from about $100,000 to $1 million.

HP's rx7100 and rx7100 are four-processor midrange systems. Pricing starts at $7,149 and $8,469, respectively.

The high-end servers being offered by IBM and Unisys also rely on Microsoft Corp.'s Windows 2000 Datacenter Server software, which hasn't been widely adopted thus far.

The Xeon MP processors run at cycle speeds of up to 1.6 GHz and should boost the performance of servers by more than 30%, compared with the older Pentium III Xeon, Intel said.

Intel last month released separate Xeon chips for use in dual-processor servers. Taken as a whole, the 32-bit Xeon family will likely be much more profitable for Intel this year than its 64-bit Itanium, said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

Joanna Smith, a database manager at Honeywell International Inc. in Morristown, N.J., said she has installed an IBM x440 server to cope with a big increase in the size of a SQL Server 2000 database that holds financial information at a data center in Tempe, Ariz.

Honeywell was reaching the physical limits of its existing server, Smith said. Now the company can add processing power by installing additional four-CPU modules as needed. Initial tests showed that the x440 increased throughput by 25% to 50%, she said.

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PATRICIA KEEFE

Virus Alerts Run Amok

CONSIDERING THE RATE AT WHICH virus attacks are increasing and the speed with which they can wreak havoc throughout an organization, causing billions of dollars in damage, it's surprising (and distressing) to consider that there's no standardized alert system. Stranger still is that it's taken until now for someone to speak up about it.



Patricia Keefe is editorial director at *Computerworld*. You can contact her at patricia_keefe@computerworld.com.

Listen to a partial roll call of offending code: Melissa, Loveletter, Anna Kournikova, Nimda, SirCam, Magistr, Myparty, Code Red and the devastating Love Bug.

Review the damage: replicated files, frozen PCs, crashed e-mail and routers, defaced sites, gigabytes of corrupted or modified data, and lost productivity and opportunities.

Any of this sending a chill down your spine?

You undoubtedly run your desktops and most servers on Windows, a favored entry point for even mildly ambitious hackers. Your users are probably still opening unsolicited attachments or, worse, sending such attachments along to others. And the growing popularity of instant messaging systems is attracting the next generatioo of viruses and worms, like Coolnow, which targets users of MSN Messenger. By the time you figure out what's going on, it's often too late. The damage is done.

On an annual basis, the bill is pretty steep. Research firm Computer Economics Inc. estimates the worldwide economic impact at $12.1 billion in 1999, $17.1 billion in 2000 and $13.2 billion in 2001. A big chunk of the jump in 2000 was from the Love Bug, which alone caused $8.75 billion in damages.

Even with the best of intentions, and armed to the teeth with firewalls, antivirus software and attachment segregation policies, it's difficult to stay current. McAfee.com claims to detect more than 53,000 viruses and other types of malignant and parasitic software. Competitor Sophos claims to have discovered 739 viruses last mooth; its product can now detect some 72,569 viruses.

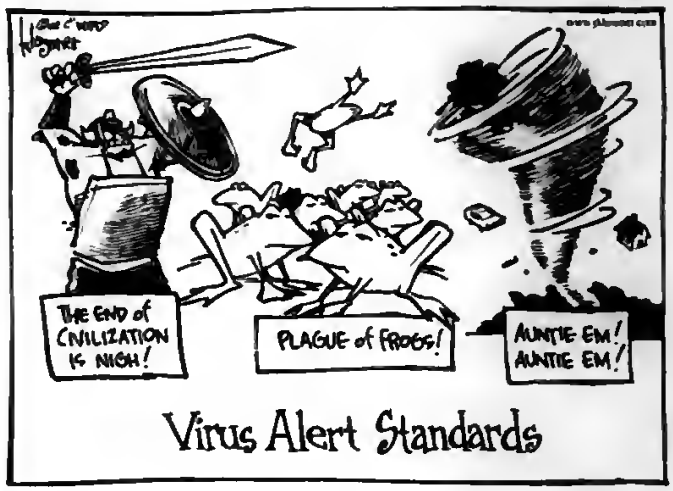
The latest virus to incite panic was the Klez.E worm, which turned out to be a dud. Had it been a bona fide threat, users would have been hard pressed to find much direction and aid from the competing plethora of warnings and alerts issued last week from an equally dizzying array of vendors.

As we detailed on our front page ["Virus Alerts Lack Standards," March 11], that was the last straw for a lot of people — users, analysts and even some vendors. They're fed up with the hype and conflicting warnings. They ought to be.

So three cheers for Kenneth Bechtel, an antivirus specialist at Tyco Electronics/AMP Inc. who did more than grit his teeth. He sent an opeo letter to the AntiVirus Information Exchange Network, urging its members to agree oo a more accurate description of their alert levels. Some consistency would be nice, too.

As reported by Dan Verton, the six major antivirus vendors, which issued six different threat levels for Klez.E, agree that there should be a standardized warning system. What we need now is for someone to grab the ball and run with it. The vendors have to look past their particular niche strengths to find the commonality in these attacks and build a warning system around that. Users need all the help they can get figuring out which pieces of malevolent software are worth worrying about.

If the Bush administration can reduce assessments of terrorist threats to five colors, each indicating a specific level of risk, the antivirus community can surely manage something similar sometime soon.



Virus Alert Standards

PIMM FOX

Managing Content Relies On Integration

ARCHEOLOGISTS lament the destruction of the ancient library in Alexandria, Egypt, and the loss of so much information. That's because even if the shelves contained only ancient romance novels, self-help books and celebrity bios, it would have given us an integrated view of a bygone era.



Pimm Fox is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

This kind of understanding prompts enthusiasm for enterprise content management (ECM) systems.

Imagine being able to pluck information from an SAP application, marry it with data in a legacy finance application and then connect it to customer data lodged in an e-commerce server database.

For business managers who believe that more information equals better customer service, healthier profits and more efficient use of resources, the benefits of rapidly and coherently gluing information together seem obvious.

How to get to this enlightened state is the function of ECM systems.

But first it's worth recognizing that information comes in two flavors for content management systems: structured and unstructured. And the real test of an ECM system is its cootent integration capabilities. Structured data comes in a format, such as rows, columns and specific templates easily recognizable to businesses as invoices, sales reports and time sheets.

Unstructured data is more fluid and more associative, often residing in e-mail programs and audio and video files. This poses a challenge to clean organization and presentation.

"Enterprise cootent management is about integrating unstructured and structured data and ultimately reusing

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it via the Web or some type of extranet," says Nick Wilkoff, an analyst at Forrester Research.

There are three approaches to ECM and one that contributes to ECM but is in essence enterprise application integration (EAI) technology.

One approach involves software from companies such as Day Management AG in which an application's data is viewed via a Java servlet permitting real-time access to data in the native location.

A second, championed by Vignette and Documentum, aggregates data in a single repository. Sophisticated publishing and content management tools are then applied without risk to the native data environments.

A third approach, demonstrated by companies such as Interwoven, compiles data in an object-based repository, exerting maximum control over the information. The challenge here is to transfer content to this object-based repository.

In each case, ECM vendors offer connectors or adapters to bridge structured and unstructured data. But this is the traditional territory of EAI vendors such as Tibco Software, webMethods, SeeBeyond Technology, Vitria Technology and IBM (with its CrossWorld's acquisition) that also perform some ECM functions.

With an integrated ECM system, even the mundane can provide insight.

DAN GILLMOR

Don't Deny Privacy for Security's Sake

ONE OF the more pernicious bits of propaganda to emerge in post-Sept. 11 America is the notion that security must trump liberty. The nation's founders are surely spinning in their graves to see their descendants sell out their heritage.

Now we're being told of the supposed incompatibility between security and privacy in the practice of everyday business. You won't be surprised to know that the major beneficiaries of this misinformation are the corporate busybodies themselves.

There's no doubt that security has been lacking. Our technology infrastructure is riddled with flaws, most of them the result of an architecture that wasn't designed with security in mind. Some are simply the result of poor programming practices.

But corporate America has never been a friend of privacy. Building dossiers on customers and regulating their behavior has always been something of a Holy Grail for businesses.



Dan Gillmor is technology columnist at the San Jose Mercury News. Contact him at dgillmor@sjmercury.com.

Abandoning their supposed libertarian principles, Silicon Valley companies and their competitors around the world are racing to help the snoops. Hardly a day passes that I don't get a press release from a company promoting some new tool that would let government and private interests collect and manipulate information about our daily lives.

For some powerful business interests, privacy is an unacceptable threat. The entertainment industry, for example, wants to prevent any possibility of unauthorized use of copyrighted material. There's only one way to achieve this — a fundamental lockdown of digital hardware and software — and the result would be a privacy debacle, because the only way to police users would be to monitor everything they view, read and hear.

Meanwhile, companies are dropping privacy products. In one of the more depressing examples, Network Associates is abandoning products with the Pretty Good Privacy encryption protocol for desktop computers.

Encryption is one technology that promotes security and privacy. Yes, it enables bad people to communicate. But if we want a safe economy in the Digital Age, strong cryptography — with its positive and negative uses — isn't an option. It's a requirement.

IT should be considering what happens when businesses are forced to put holes into everyday systems so that law enforcement can easily find wrongdoers or potential criminals. If government has a back door to every communication or collects vast amounts of data in central locations, the potential for a privacy debacle is enormous.

Security and consumer privacy aren't technologically incompatible, either. It's possible to separate identity from data, for example, by letting people have multiple pseudonyms that guarantee the ability to pay (sellers need this) while not giving up personally identifying information (sellers hate this).

The architecture of tomorrow is up for grabs. Will it deny privacy in the name of security? IT can help make sure it does not.

Note: After last month's column about the rise of desktop Unix in the guise of Mac OS X [News Opinion, Feb. 18], several readers wrote to say I was wrong to note the lack of an OS X version of Photoshop. At the time I wrote the column, the product was rumored but not announced. I'm glad to see Adobe make this belated but welcome move, but I always write my columns mindful of the industry's history of vaporware and late deliveries.

READERS' LETTERS

Strassmann Missed Point on IT Alignment Model

I FOUND THE column "Out of Alignment" [Business Opinion, March 4] initially intriguing. Someone with the reputation of Paul Strassmann was critiquing my work. After considering his misinterpretation of the analysis of the data and the conclusions that were conveyed in his column, I am compelled to respond.

First, the description of how the maturity assessment elicits information is incorrect. The assessment uses validated survey questions as well as interview and group discussion techniques and has been applied mostly to organizations, not companies. Trying to relate the alignment maturity of one part of a company to an entire company's profits is inappropriate.

Second, Strassmann's historical profit data was from different years than the maturity assessment data. The maturity data is current, and it wouldn't be realistic to expect a correlation to be found comparing it to Strassmann's historical data. Also, the benefits that accrue to the business will typically lag the improved maturity of the alignment.

Third, if profits were to be used as the only criteria for assessing the maturity of alignment, as Strassmann suggests, how does he propose to decide how much to allocate to IT vs. other functional organizations? If a firm had a strong alignment maturity assessment and the economy was in recession (as it was) with profits falling, does that suggest low alignment maturity? It is much more complex than what Strassmann suggests. [See "Measuring Alignment," Business, May 7, 2001]

Last, alignment isn't just about profits. To consider only return on investment isn't the most effective way of demonstrating IT value, let alone IT/business alignment. Organizations need to understand what can be done to leverage IT so that it can be recognized as an enabler/driver of profits. That is the objective of the maturity assessment. My research has found that six criteria — value metrics, governance, communications, technology, partnership and human resources — must be met to attain mature alignment. There is no one silver bullet.

Alignment is about process. Knowing the alignment maturity of an organization might not reveal immediate profits to the firm, but it will provide the organization with a road map to make IT a recognized enabler/driver of business value.

Jerry Luftman
Director
Stevens Institute of Technology
School of Technology Management
Hoboken, N.J.

Paul A. Strassmann responds: *First: The maturity ratings reflected a sample of practices. They were matched against a comparable sample of financial results. The two samples were unrelated. My method for comparing the two samples used standard statistical techniques. Second: The most favorable and the latest available data were for fiscal 2000. Maturity ratings were also tested against two prior years. Maturity was unrelated to returns on assets, profits, revenues and the stock market. Third: Though value metrics, governance, communications, technology, partnership and human resources are important, CEOs and CFOs will judge the contributions of IT to profitability as the single most important, and only independently verifiable, test of IT "maturity."*

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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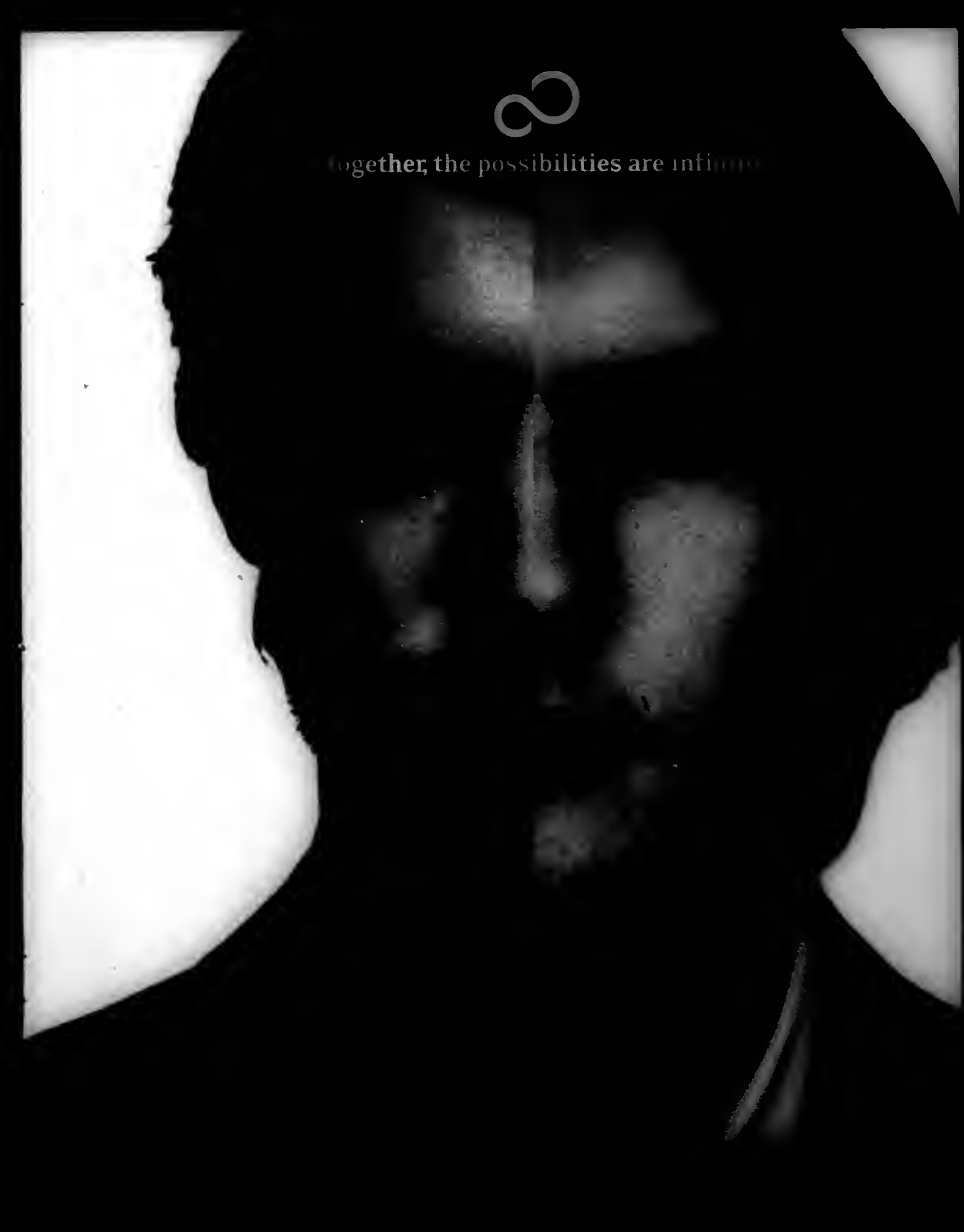
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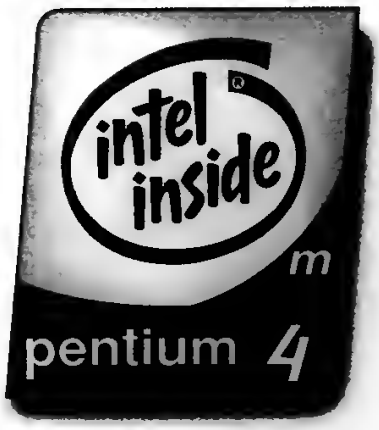
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Recovery Ahead!

Get your IT house in order now so you're prepared for the business rebound later this year.

EDITOR'S NOTE

THE HEADLINES say the economy is recovering, but it's a recovery that feels more like the fourth day of the flu. It's certainly not party time. IT spending is still down — way down from those heady days in 1999 when the words *e-commerce* and *Y2k crisis* opened the corporate checkbook in a flash.

Economists say the recovery — the one you care about, the one in IT spending — won't happen until the third or fourth quarter of this year, after CEOs see a glimmer of profits on the horizon. So what do you do in the meantime if you can't spend money on new stuff? It's time to beef up your project management skills, outsource routine chores, learn to measure IT's return on investment and prepare for better days ahead.

Why? You'll be in a better position to deliver business value when the IT checkbook opens again in a few months. Companies that "use the slowdown to trim, refocus and then accelerate" — while keeping their best customers happy — will emerge in a better strategic position, according to Mercer Management Consulting Inc. This *Computerworld* special report is full of information to help you do that.

If you make use of this short window of time to get your house in order, you'll be ready when the business starts placing heavier demands on IT. "As the economy begins to recover in mid-2002, businesses will look to IT to drive new opportunities, new markets and new wealth," says a recent Gartner Inc. bulletin. But it can't be done with IT budgets created for lean times — CEOs will have to quickly adjust those budgets if they suddenly want some strategic IT investments.

When that happens, you'll know the real economic recovery has begun.

Mitch Betts (mitch_betts@computerworld.com) is director of Computerworld's Knowledge Centers.



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The Story So Far

The journey from back-office DP to MIS to IT ends with ROI in the boardroom. By Frank Hayes

THE ORIGINAL IDEA of IT management wasn't to get a better return on investment. The original idea was to keep the mainframe busy.

When mainframe computers began arriving at large corporations in the late 1950s, they were there to replace banks of mechanical tabulating machines that had been used for decades to sort and process customer and transactioo information on punched paper cards.

The Tabulations (or "Tabs") group was usually part of the accounting department, and in the beginning the mainframe's role was simple: to store accounting data and process it faster than the old tabulators could.

But the mainframes were far more expensive than the tabulators. So the first management goal as Tabs became the data processing department was to schedule jobs efficiently, so no time on the big machine went to waste.

True, the role of DP was expanding. In the 1960s, Big Iron began to get its first big jobs. Material requirements planning (MRP) software made it possible to link purchasing, production and cost accounting — and the mainframe began to pay its own way.

And special-purpose systems such as American Airlines Inc.'s Sabre system for airline reservations and capacity planning were designed to give the companies that built them a competitive advantage, offering capabilities that simply wouldn't exist without the computer system.

But those were the exceptions. Most data processing management still consisted of keeping the mainframe busy — and keeping system development teams on track, since the large accounting and transactions programs that were the data processing department's stock in trade were almost always writteo and maintained by the data processing department itself.

Then came the 1970s — and management informatioo systems. With all that data about sales, productioo and other business functions on the mainframe, business-side executives wanted more from data processing than simply running bookkeeping reports. Data processing's role shifted to MIS as the department began to crank out more and more reports outside the scope of accounting — though the vice president of MIS still invariably reported to the chief financial officer.

As the MIS department's role expanded, homegrown systems were getting bigger — and harder to build and maintain. By the early 1980s, an MIS director's biggest concern was keeping the cost of all those programmers and their projects under control. Almost all software development projects ran late and over budget; many failed completely. Computer-aided software engineering was supposed to solve the problems. In a few MIS shops it did, but in most, it simply became shelfware.

Meanwhile, desktop computers began to arrive — first as intelligent terminals, and then as the user end of client/server systems. Packaged PC software, once limited to stand-alone applications such as word processors and spreadsheets, became more complicated. Now the problem was keeping a rein on tbe data that had once been kept safely inside the mainframe — and keeping down the now-spiraling costs of all the hardware, software and networking that was outside the MIS department.

They weren't just *management* information systems any longer — a PC was on almost every desk by the early 1990s. And the renamed information systems department could no longer bill departments for their computing time. Now came the hard demand that every project be able to show a return oo the investment.

Remember Re-engineering?

But ROI wasn't the only acronym that IS shops faced. BPR — business process re-engineering — demanded that decades-old, homegrown mainframe business software be changed to match new business models. ERP — enterprise resource planning, the grandsoo of the old MRP systems — offered the chance to make those changes with packaged software that IS shops could buy, not build themselves.

JIT — just-in-time manufacturing — depended on supply chain management systems. Y2k was looming, with the threat that a business could be wiped out by faulty computer systems. And e-commerce on the World Wide Web meant that, suddenly, business computer systems could become directly responsible for selling products — or losing the sale.

IT departments scrambled — downsizing hardware to Unix servers, consolidating data ceoters ooto bigger mainframes, outsourcing software development and Internet services. And CIOs faced the harsh glare of board-level attention, now that their IT departmeots were deeply involved in almost every aspect of the business.

And since the start of the recessioo a year ago, ROI isn't just a demand on IT shops. It's IT's contribution to the business's survival.

And now, on with the story. . . . ▶





◀ **1952:** Arthur Andersen project leader **Joseph Glickauf** (pictured here holding the Glickac counting machine) heads up the first busrness IT consulting project for General Electnc Co.

1959: The Conferences on Data System Languages begins work on the first Cobol specification.

1965: Digital Equipment Corp. launches the PDP-8 minicomputer.

▲ **1981: IBM Personal Computer** introduced.

1990: Thomas H. Davenport, Michael Hammer and James Champy promote business process re-engineerng.

1997: Y2k concerns raise the profile of corporate IT departments.

1950 | 1960 | 1970 | 1980 | 1990 | 2000

1951: Leo, the first business computer, is installed at catering firm J. Lyons & Co. in England

1960: IBM engineer Joseph Orlicky installs the first Net-Change MRP system, for J.I. Case in Racine, Wis.

1964: IBM announces the System/360 mainframe.



◀ **1986: DuWayne Peterson** of Merrill Lynch & Co. becomes the first million-dollar CIO.

1992: SAP AG releases SAP R/3.


VERITAS

Ready for A Rebound

Smart IT managers know the recession won't last forever. Here's what you can do now to prepare for better times.

By Steve Ulfelder



TAMARA REYNOLDS

TIMES ARE TOUGH. Budgets are tight. But this too shall pass. The question is, What can you do now to ensure that when the economy bounces back, you'll be ready?

A cadre of recent research reports shows few bright spots in IT spending this year. Stamford, Conn.-based Meta Group Inc. predicts that total IT spending in the U.S. will drop 2% to 5% this year, after an 8% increase last year. As a percentage of revenue, IT spending will drop 4% to 5%, according to Meta analyst Howard Rubin.

Even if the economic logjam breaks tomorrow, it will be difficult to pry a lot of extra money free this fiscal year. Nevertheless, CIOs and analysts say there are smart moves IT managers can make now to prepare for the recovery and fully exploit it when it arrives.

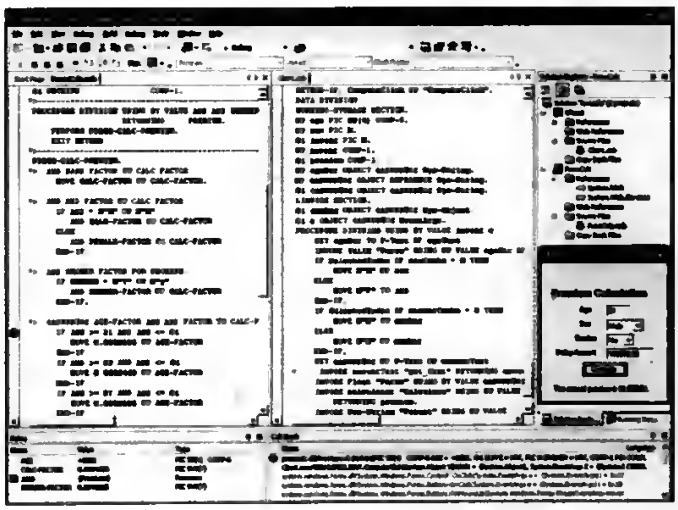
Some CIOs say recent belt-tightening has been almost a relief. Throughout the 1990s, corporations spent freely on new applications that languished or

Continued on page 38



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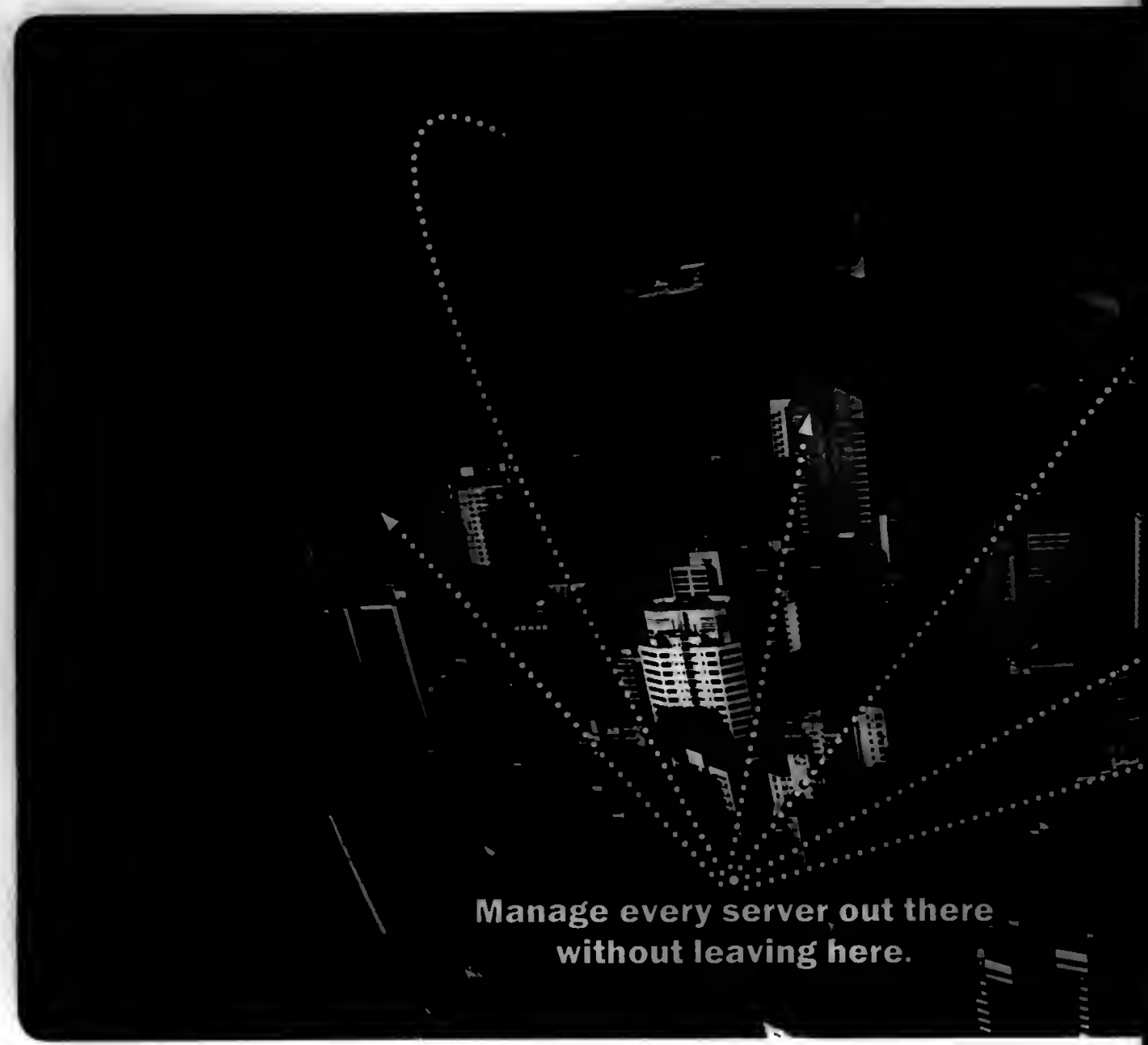
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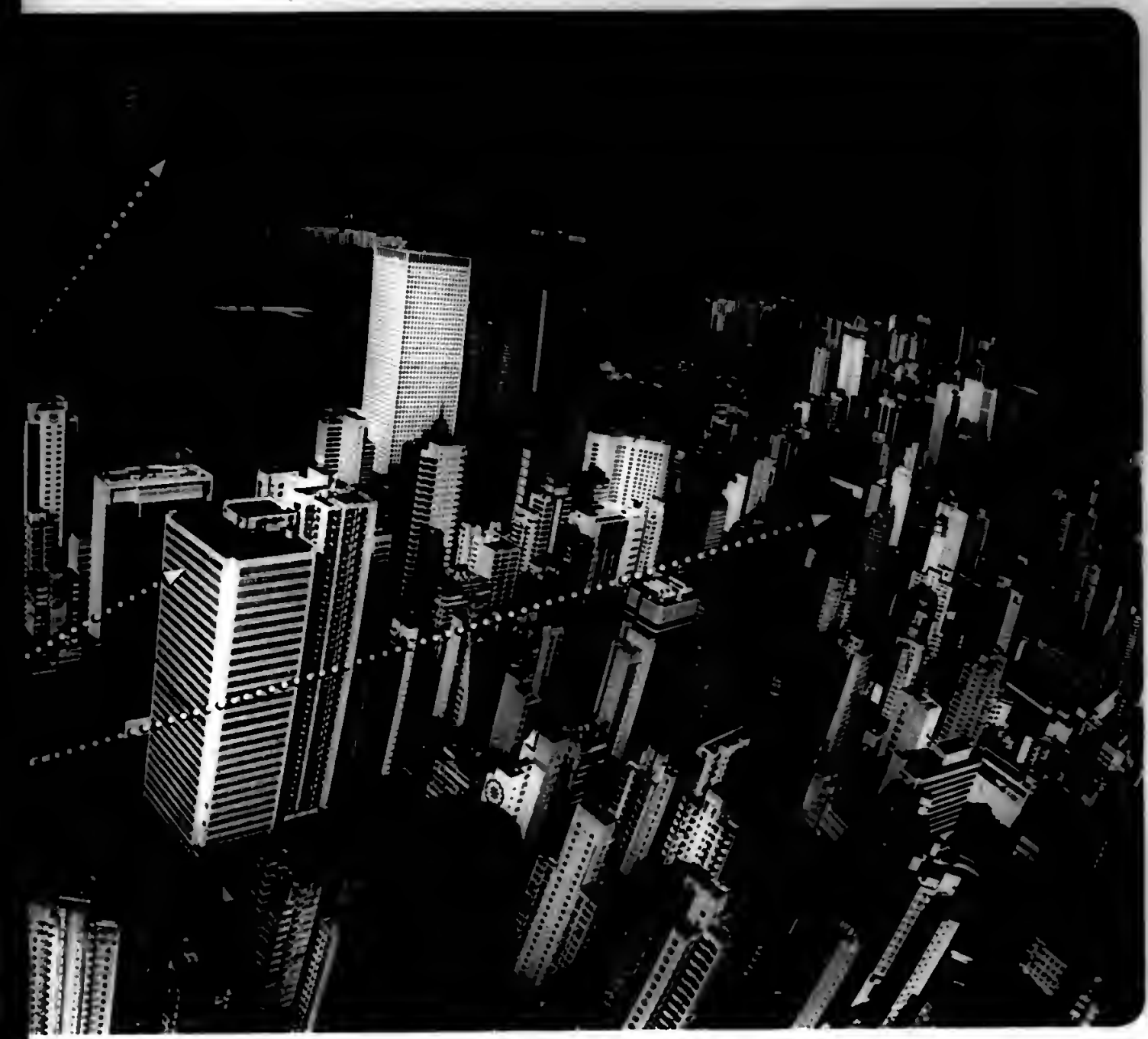


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Continued from page 34

underperformed because IT had moved on to "the next big thing." The present downturn is the perfect time to wring value from some of these systems and weed out the rest.

"Let's get away from doing a global ERP rollout for its own sake," says John Bermudez, an analyst at Boston-based AMR Research Inc. "There's a backlog of unused and unimplemented software," including enterprise resource planning, customer relationship management (CRM) and supply chain management applications. "CIOs are focused oo getting the most out of what they've already purchased," he ootes.

"These times are unsettling, but they can be an opportunity to home in on projects and processes you've neglected," says Kent Fourman, vice president and CIO at Gaylord Entertainment Co., a Nashville-based hotel and entertainment company. "Sometimes you can really offer value by doing nonglamorous things." That often means forestalling externally focused projects such as CRM and supply chain management, focusing instead on internal processes.

Schneider Logistics Inc., a Green Bay, Wis.-based trucking and logistics company, budgeted for a lean first half of 2002 and an economic recovery in the second half. To that end, "we focused on firm ROI," says Steven J. Matheys, Schneider's senior vice president and CIO. "You retrench around security and scalability. You make sure you've got a rock-solid infrastructure." He points to internally focused applications, such as sales and operational productivity tools, as the types of tangible, quantifisble projects Schneider now concentrates on.

Getting the fundamentals under control will keep workers challenged and allow you to make judicious gambles when the economy turns. "When things are going good, you can take more risks," Matheys says. "For now, you anticipate where you want to be."

Rick Peltz, CIO at Marcus & Millichap Real Estate Investment Brokerage Co. in Encino, Calif., offers a textbook example of how an IT organization can take advantage of lean times by building the foundation for ambitious future projects. "Bringing in technology to shorten the listing cycle [for Marcus & Millichap brokers] is critical for me," Peltz says. A shorter listing cycle means fast property turnover, "and that's your ROI right there," he explains.

Last summer, Marcus & Millichap's IT group built a simple application that let agents punch in buyers' criteria such as location and price. When a new property entered the company's database and matched the criteria, the agent was automatically notified via e-mail. Agents now spend less time at their PCs and more time in the field.

"It took us a month and a half to develop and two weeks to roll out," Peltz says. "And it paid off immediately. We've made a half-dozen sales where all the agent did was receive an e-mail."

Peltz says this type of cost-effective application proves to his peers in senior management that IT can deliver real value. And it lays the groundwork for a more ambitious project Peltz is planning for brighter economic times: a collaboration Web site that will allow Marcus & Millichap agents to perform most of their routine transactions online, such as creating loan origination and other documents.

Turning Lemons Into Lemonade

Here are four ways to prepare for when the economy rebounds:

1 Mind the fundamentals. Fully implement the applications you plan to keep, get rid of the deadwood, and bulletproof your infrastructure. That way, your own house will be in order when you have money to tackle the sexy projects again.

2 Show ROI now; get ambitious later. During the downturn, business executives have demanded rapid returns on companies' technology investments. Every time you deliver solid ROI now, you gain credibility you can use later to win approval for longer-term projects.

3 Hire quality, not quantity. It's a good time to hire, but the best people are still in demand. Rather than reveling in the return to reasonable salary demands, take your time, and pay appropriately for outstanding workers.

4 Lock in favorable contracts. Take advantage of vendors' willingness to deal by obtaining favorable long-term contracts where possible. And enjoy the buyer's market while it lasts.

– *Steve Ulfelder*

Peltz says he's unsure whether his IT organization will build the system oo its own, buy document-control software or outsource the entire project, so the project's price range is hard to pin down. But it woo't be cbeap. And more to the point, "the Web site will take a long time to pay off," Peltz says, because it will eotail significant organizational change.

What's important, though, is that the IT department's ability to deliver solid returns has convinced senior management that when the economy recovers, the time will be right to implement the project.

Top Pay for Top Performers

IT managers are relieved that staffing problems have diminished. But how do you take advantage of this phenomenon, which is surely temporary? The dot-com gold rush demonstrated that IT workers are willing to follow the money — when there's money to be followed. Matheys speaks for many CIOs when he says, "We're going to hire based on our strategy, not just because the market's there. . . . If the market opens up in a year, there's no guarantee people are going to stay anyway."

David C. John, first vice president and CIO at Bayerische Landesbank in New York, says companies should be willing to pay higher salaries, but only for top workers. "Over the past few years, there's been quite a number of IT administrators who don't have the experience they've claimed," John says. "This is an opportune time to pay a higher salary to someone with verifiable experience, rather than spending half as much on substandard employees."

CIOs point out that even when the economy recovers, IT workers will long remember the downturn that began in 2000, so job security is likely to be a significant lure. Peltz says he frequently reminds his staff that Marcus & Millichap hasn't laid off an employee in its 29 years of business. While few companies have such a track record, this is a good time to build employee loyalty in any way possible.

In the silver-lining department, CIOs say that in the past six months in particular, vendors have become more flexible about contracts and pricing, or "a little less proud" of their wares, as Fourman puts it. For example, Mathesys says a provider of application development resources, which he declines to name, recently agreed to tackle a project at Schneider at no cost, "in the hope that when they were done, we'd see how good they are and hire them."

When the economy improves, IT will face a stiff challenge trying to maintain the upper hand. But "vendors are now facing a smarter customer," AMR's Bermudez says.

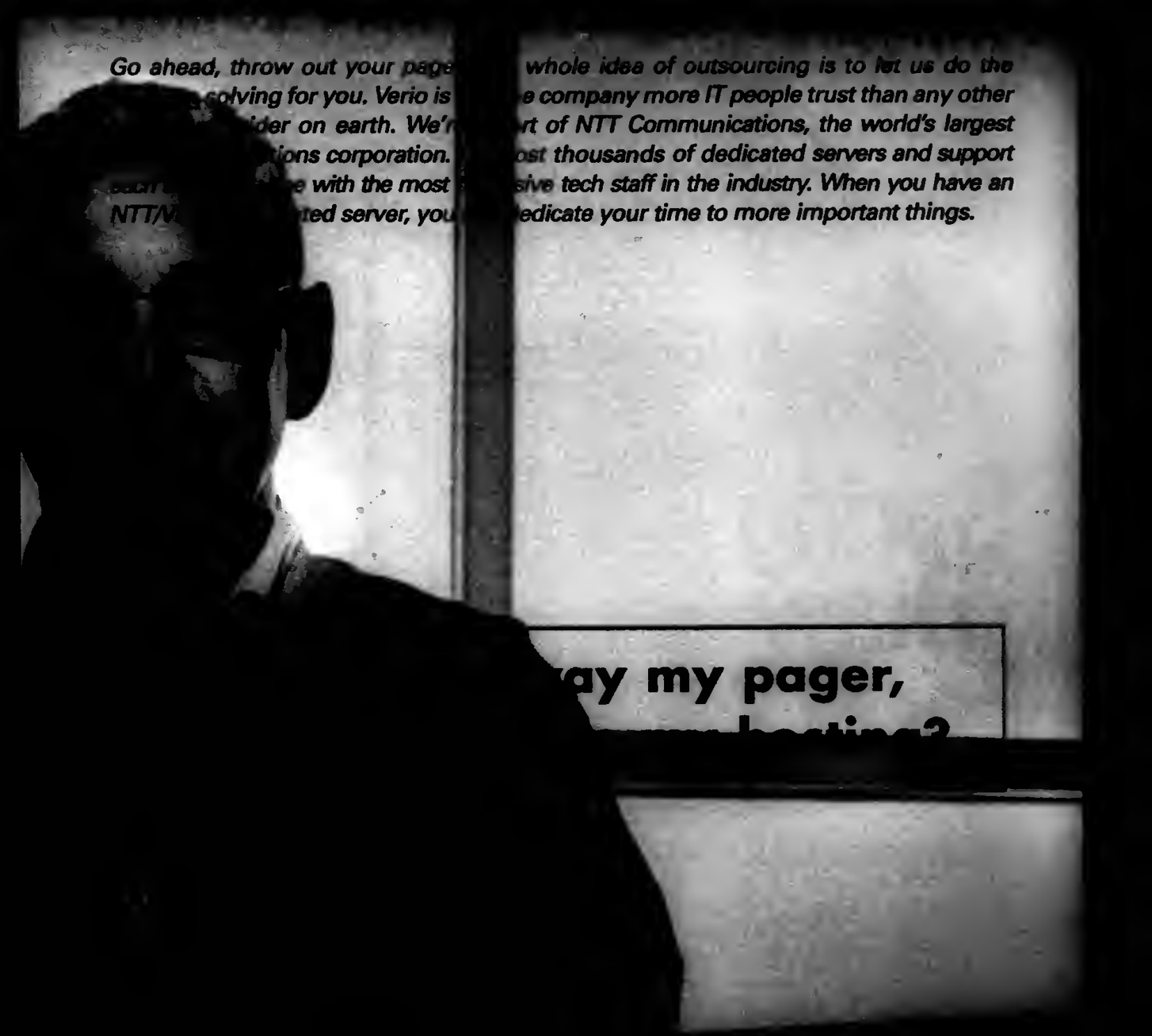
John says that while vendors are reeling, it's important "to secure as many contracts at a reasonable [fee] as possible." Time is of the essence, he adds, because "with the large number of smaller competitors being purchased or going belly up, the pendulum may swing back quicker than anticipated."

While the recession hasn't been pleasant for anybody, from CIOs to staffers to vendors, thoughtful organizations are taking advantage of the downturn to re-examine their technology investments — and to ensure that when the budget opens up, they will learn from old errors and spend prudently ◗

Ulfelder is a freelance writer in Southboro, Mass. Contact him at sulfelder@yahoo.com.

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Spring Thaw For IT?

Economists say the worst is over and today's frozen IT budgets will warm up later this year. By Mitch Betts

THERE ARE SIGNS that the U.S. economic recession is over, or nearly over, and that a modest recovery is imminent. But business capital spending — investments in everything from machinery to computers and software — remains weak outside the defense industry.

Still, economists say the worst is over and a fledgling IT spending recovery is under way, particularly in enterprise software. That may explain why software vendors such as PeopleSoft Inc. and Siebel Systems Inc. recently had surprisingly strong quarterly financial reports, as users switched from deferring purchases to placing orders.

It's far too early to celebrate, though. Economists say a full-scale recovery in IT spending won't arrive until there are several quarters of economic growth — a signal to corporate executives that it's OK to spend again — and signs of corporate profits on the horizon. Even then, it won't be like the glory days of the late 1990s, and some vertical industries will still be stuck in an IT downturn (see charts).

Computerworld asked several business economists about the prospects for an IT spending rebound.

John Dunham, president
John Dunham and Associates Inc., New York

"Business capital spending lags [corporate] profits — it always does — by about six months. Profits are way down, and that means business capital spending probably isn't going to improve until midyear. This downturn was really driven by the collapse of business capital spending, not by consumer spending, which is generally the case. I don't think you'll see computer equipment [purchases] pick up in a meaningful way until the third quarter."

Steven Wood, chief economist
FinancialOxygen Inc., Walnut Creek, Calif.

"The most recent data we have from the government suggests that the turnaround in capital spending has already begun. Of course, we are coming off a horrific year in which capital spending, particularly high-technology spending, was really pummeled. But both the investment data and the new-orders data suggest that the worst is over for capital spending, including for computers [and software].

"I don't expect a sharp rebound — that is, we are not going back to the glory years of the late 1990s — but I suspect that by the end of the year, capital spending will be one of the pleasant surprises for 2002."

Mark Vitner, economist
Wachovia Securities, Charlotte, N.C.

"Business spending on computers and software is already rebounding. The gains, however, are ever so slight and currently appear to be more heavily weighted toward software.

"Many companies are sitting on huge stockpiles of unused or underutilized hardware and do not see much benefit in buying new equipment until they believe it will boost sales or cut expenses. That probably won't happen until [gross domestic product] growth rebounds back above a 3% pace for two or three quarters, putting a strong rebound in computer and software spending into the latter part of 2002 or early part of 2003."

Wes Basel, senior economist
Economy.com Inc., West Chester, Pa.

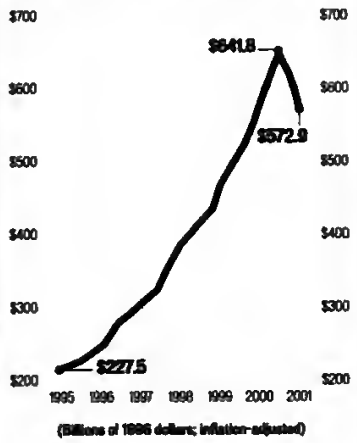
"I wouldn't call it a rebound, but we expect [capital spending] growth to turn positive by the second or third quarter. The installed base is getting a little old, since everybody's held off on spending for so long. We see an improved profit outlook by the end of the year, and [corporations] will start to increase their budgets somewhat. It will be moderate growth, nothing like the end of the 1990s."

David Blond, chief economist
MergeGlobal Inc., Arlington, Va.

"Our own estimate is that by the end of this year, companies will recognize that this recovery is happening. When that occurs… they will invest in new capital, mainly computers and other productivity-enhancing investments, such as machines tied to computers. We can expect that by the end of this year, and on into next, the underinvestment will turn into overinvestment. This should drive the tech cycle into 2003." ●

Business IT Spending

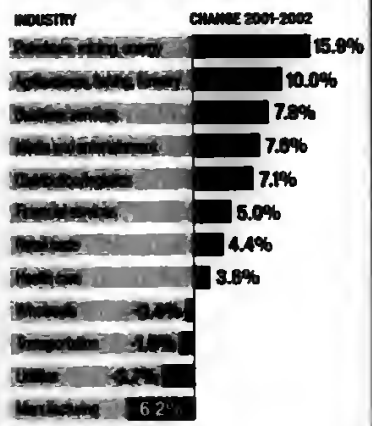
Businesses cut back on investments in computers and software after the Y2k buying spree.



SOURCE: U.S. DEPARTMENT OF COMMERCE, FEBRUARY 2002

2002 IT Budgets By Industry

Energy and agribusiness are up; manufacturing is down.



Base: Survey of 1,048 IT professionals

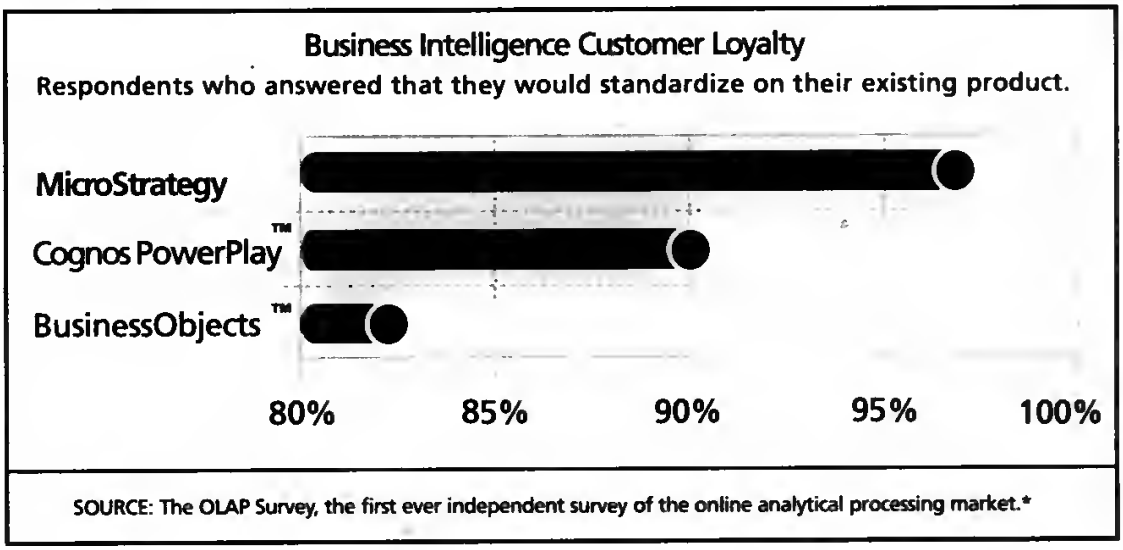
SOURCE: "IT SPENDING CONFIDENCE SURVEY," NOVEMBER 2001, BY GARTNER INC. IN STAMFORD, CONN., AND SOUNDVIEW TECHNOLOGY GROUP INC. IN OLD GREENWICH, CONN.

Online Exclusive

Are your systems obsolete? The strength of the IT spending rebound may depend on whether IT managers believe their current systems need to be replaced.

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Is a recession a good time for IT outsourcing? These cost-conscious users say, 'Yes!' By Jaikumar Vijayan



IN BETTER ECONOMIC TIMES, companies outsourced IT to get access to scarce IT talent. But in today's down economy, saving money has bubbled to the top as one of the primary reasons for making outsourcing deals.

Many of the other factors that make outsourcing appealing for some, such as better access to skills and improved time to market, remain crucial in recessionary times as well.

But at the highest levels of the executive ranks, the question that's increasingly driving outsourcing is: "Can someone else do this for less?" say users and analysts.

Take Fireman's Fund Insurance Co. in Novato, Calif., which last fall signed a 10-year, $380 million outsourcing deal with CGI Group Inc. in Montreal.

As part of the agreement, CGI will provide Fireman's Fund with IT support services to some 80 locations across the U.S. CGI has taken over the insurance company's Phoenix data center, and about 300 Fireman's Fund employees have become CGI employees.

The growing challenge of maintaining and staffing Fireman's vital-but-aging legacy systems was a primary driver of the deal, says CIO Billy McCarter. The decision to hand over legacy operations to CGI has left Fireman's with a leaner IT organization focused on developing new applications that it hopes will give it a competitive market edge.

"The way we looked at it, we could run the best data center in the world and Fireman's market cap wasn't going to grow," explains McCarter.

But the contract with CGI has also resulted in a substantial 21% savings in infrastructure costs — a benefit that has assumed even bigger significance in today's economy, McCarter says.

The huge fixed costs associated with owning an 800-MIPS data center have been eliminated because CGI owns it instead. Most of Fireman's infrastructure costs today are based on actual usage, an arrangement that has proved to be a far more efficient and economic model, according to McCarter. And CGI uses Fireman's data center to deliver services to other customers as well, so the costs are spread among multiple customers. For instance, a large printing operation that Fireman's Fund previously ran at half capacity out of its data center is now being used around the clock to deliver print services to other customers, resulting in

> **"The way we looked at it, we could run the best data center in the world and Fireman's market cap wasn't going to grow.**
>
> BILLY McCARTER (ABOVE), CIO, FIREMAN'S FUND INSURANCE CO.

The Outsou

lower printing costs per customer.

"We are not unlike any other company that's being asked to contain IT expenditures during these critical times. If we can reduce infrastructure costs, we can shift the savings to our development organization while we retain a flat budget," McCarter says.

That kind of thinking is what's driving outsourcing growth in a sluggish economy. Stamford, Conn.-based research firm Gartner Inc. predicts that the IT outsourcing market in North America will grow from $101 billion in 2000 to $160 billion by 2005 as corporations try to lower IT spending while converting unpredictable costs into fixed costs.

"There is no doubt that this economic slowdown is boosting outsourcing," says Humberto Andrade, an analyst at Hampton, N.H.-based Technology Business Research Inc. Pointing to the financial results of IT services companies such as Electronic Data Systems Corp. and IBM, Andrade says, "These are the only kind of companies that are still doing well, while every other IT company is suffering."

A Welcome Bonus

For users that have already outsourced IT operations for other reasons, the cost savings are a welcome bonus in tight times.

The economy had little to do with Allmerica Financial Corp.'s original decision to outsource legacy operations to Keane Inc. in Boston two years ago. But since then, the recession has sharply accelerated the company's efforts to off-load work to Keane, says Allmerica CIO Greg Tranter.

Over the past six months, the Worcester, Mass.-based insurer has transferred 139 IT employees from its payroll to Keane's. The transfer was originally supposed to occur in about two years, but if those employees had remained at Allmerica, the insurer would have had to lay off 42 of them by now, Tranter says.

Allmerica's outsourcing strategy has allowed it to off-load legacy applications to Keane while freeing its IT organization to focus on developing cutting-edge applications, such as an Internet-based point-of-sale application, he adds.

Cost wasn't the most important consideration when Allmerica signed up with Keane. But the resulting 20% savings in application development and maintenance costs has been vital, Tranter says.

Technology complexity is another consideration, says Ed Flynn, CIO at Philadelphia-based FMC Corp. a $2 billion chemicals manufacturer. Handing over complex technologies to companies with the know-how is both economical and efficient, Flynn says. It eliminates the risk and time involved in developing that knowledge in-house.

FMC uses a variety of outsourcing vendors including IBM; Digex Inc. in Beltsville, Md.; Genuity Inc. in Woburn, Mass.; and Aventail Corp. in Seattle.

"Cost has been an important priority in all these relationships. But our view on costs doesn't change based on the economy," says Flynn. "We are in some very competitive industries, and we look at costs all the time."

Indeed, the procurement specialists who negotiate contracts with outsourcers are becoming a lot more aggressive in seeking cost savings and productivity gains, says Tim Barry, a senior vice president of application outsourcing at Keane.

"Right now, in this economy, cost savings is the No. 1 criterion" for an outsourcing deal, Barry says. "It's forcing companies like ours to come up with creative ways to deliver services."

Beyond the usual domestic and offshore outsourcing options, Keane and several other outsourcing firms offer "near-shore" application outsourcing, meaning the IT services are performed in nearby countries such as Canada.

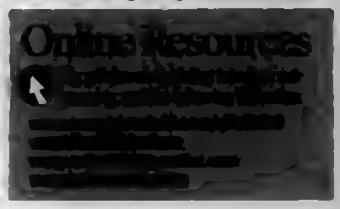
Keane's near-shore services — from a facility in Nova Scotia — are targeted at customers who want the cost savings of an offshore model but want it close to home, Barry says. Because of the favorable currency exchange rate and the lower cost of labor in Canada, U.S.-based companies can deliver some services from Canada for 20% to 30% less than they could from the U.S.

"People are looking for opportunities to go near-shore and offshore much more than they have done in the past," Barry says.

Some of the services that Keane is delivering for Allmerica are from Canada. Similarly, CGI is using its Canadian data centers to support some 500 Windows NT servers and large Unix platforms for Fireman's Fund.

"Right now, we are bidding on more projects than we have ever bid before," says Michael Fliak, a senior vice president at CGI. "We have $5 billion [worth of orders] in the pipeline," driven largely by companies hoping to save money, he says.

"A recession many times is very good for outsourcing companies," he says.



The Boomerang Effect

Be prepared to bring outsourced operations back in-house

The key to IT success in this economy is to figure out what it costs you to do something internally and compare it with market costs, says Allan Cytryn, CIO at professional services giant Deloitte Touche Tohmatsu in New York.

If a process or service can be delivered more cheaply and efficiently by another party, then off-load it. If not, keep it in-house. But do the analysis on a continuing basis, and be prepared to flip things around as often as needed, Cytryn says.

Last year, for instance, Deloitte contracted with Aventail for managed security services. Under the arrangement, Aventail provides Deloitte with services such as a managed virtual private network, managed firewalls and intrusion detection.

The service went live in Deloitte's New York office near the World Trade Center on Sept. 12, one day after the terrorist attacks that leveled the complex and several weeks ahead of schedule.

Going with Aventail allowed Deloitte to quickly and cost-effectively implement an important new service in an economy where the staffing and training budgets for new projects are simply not there, Cytryn says.

At the same time, Cytryn advises, be prepared to bring things back in-house, if needed. Deloitte recently did that with some previously outsourced print services, after an analysis showed that it was cheaper to do the same things internally.

"We have got to be nimble in this marketplace. There is no one model that works all the time," says Cytryn. He says his company's hybrid approach has resulted in a 10% increase in IT productivity as measured by the number of and users supported his organization.

– *Jaikumar Vijayan*

rcing Boom

KEVIN FOGARTY

Economy May Speed IT Evolution

IT'S AN IDIOTIC MARKETING HABIT to call obstacles "challenges" and disasters "opportunities."

The current economic "opportunity" has slashed IT budgets to the point that the CIOs I talk to are envious of colleagues whose budgets are merely flat, rather than deflating.

But whoever said evolution was easy? Evolutionary progress comes not from a carefully devised plan, but from a desperate attempt to avoid disaster.

The attempt I see many CIOs making, however, is to fade into the background in the hope that *not* spending money will make IT less conspicuous as a cost-cutting target.

OPINION

But that's the quickest way for IT to lose the progress it has made during the past few years, when it matured from a derided, underpaid support organization to a tolerated, well-paid support organization.

It will be interesting to see how many of those CIOs will be able to use these bad economic times as a lever for still more change — to cross the chasm between supporting an organization and becoming part of it. That's what happened to IT in the biotechnology and pharmaceutical industries, sort of accidentally.

It takes so much data and compute power to crack the human genome and squeeze profitable drugs from it that it became obvious that it's not practical to have IT act as a separate group. In fact, in the drug development process, it's often hard to separate what used to be called wet-lab research from the IT that enables it.

Instead, drug-discovery researchers mix scientifically literate IT people with informaticians — scientists who specialize in building analytics and databases for research, not in the research itself. Those teams work together to build the tools scientists need to advance their research.

Informaticians at global pharmaceutical giant Aventis, for example, help scientists build algorithms and analytics to overcome whatever highly idiosyncratic genomic or molecular chemistry challenge they're facing.

Then, the IT people help the informaticians make sure the application is scalable and that it will work when they migrate it to the data center so that other scientists can use it.

At biotech firm Vertex Pharmaceuticals, IT assigns staffers to work in research groups, help informaticians code new applications, build and support custom systems, and generally be a contributing part of the team.

In both cases, a mainstream IT group hovers behind the scenes, building and maintaining the network, the data center and other infrastructure.

In both cases, IT is more than just support. It works actively with the science groups, being flexible enough to meet their needs but responsible enough to keep the technology and IT spending under control.

That's starting to happen in other organizations as well, but it's not clear in some of them whether that's a step forward or a step back. RadioShack, health care services company First Health, communications gear vendor Tellabs and $1.5 billion trucking company Landstar System Inc. have all tightened their project approval processes by making business units financially responsible for IT projects. The goal is mainly to be sure that any projects that are approved are critical to the company, not just something that IT is doing on spec.



That's a step forward. Probably. The CIOs are still working with the business units, but the business units have taken over more of the decision-making. If they take over too much of that responsibility, IT could get left out of all the important questions, except what kinds of routers to buy and who gets to go into the data center unescorted.

The biotech model, in which IT people actually become part of the units they support, keeps the focus on the business needs, with appropriate input from IT.

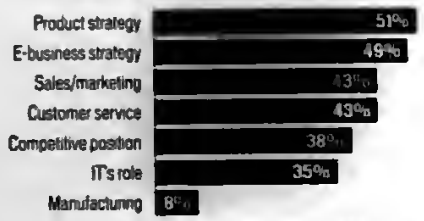
But in that model, part of IT is no longer IT — it's part of the business itself. That's important. And evolutionary, in a time when evolution is necessary for the IT function to grow beyond its roots as *just* a support for other groups.

Who knows? Maybe IT as a separate entity will go away someday, except for a few dinosaurs behind the scenes still maintaining the infrastructure that makes everything else work.

Now *that* would be an opportunity.

IT: Often Absent

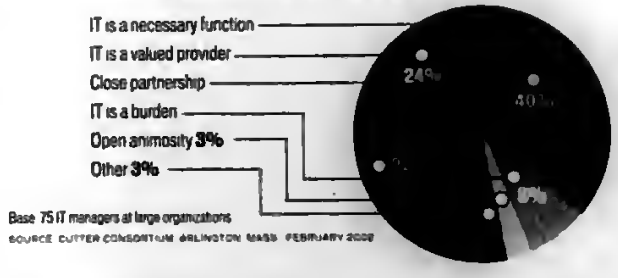
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Which subjects are included in your formal business strategy?



Base: 75 IT managers at large organizations; multiple responses allowed
SOURCE: CUTTER CONSORTIUM, ARLINGTON, MASS., FEBRUARY 2002

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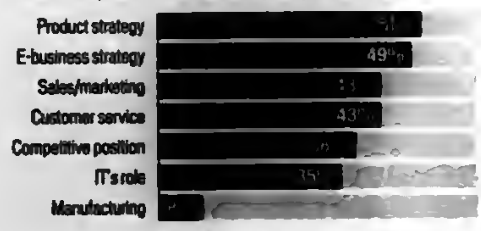
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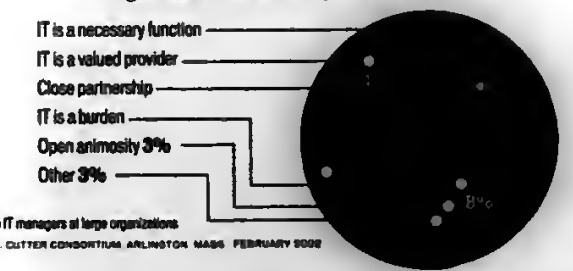
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Keep your staff and find slack in underused hardware and maintenance contracts instead. By Kevin Fogarty



"USE IT UP. Wear it out. Make do. Or do without." IT managers say this old New England adage, which encourages frugality, was solid advice for 19th century farmers, but it doesn't always work for an IT department that wants to keep its edge through the recession and beyond.

With IT budgets slumping and little relief in sight, stretching resources and cutting costs are the norm. But analysts say many IT managers are risking their departments' future health by slashing head count to stabilize their budgets. While layoffs are the quickest, surest way to save money, they could also have the most dire long-term results, leaving IT departments and the companies they serve unable to reconfigure themselves to deal with the downturn and, eventually, an economic uptick, according to analysts at Stamford, Conn.-based Gartner Inc. and other firms.

"Businesses are demanding the same level of services but are saying IT has to deliver it for 10% lower cost," says Doug Lynn, an analyst at Stamford, Conn.-based Meta Group Inc. "The problem is, most of the IT people can't say no, because they have all these outsourcers on the outside saying they can do the same job cheaper, even though they can't."

A better approach is to cut infrastructure costs, especially for hardware and maintenance, which eat up huge chunks of most budgets, says Gartner analyst Mark Nicolett.

Hardware expenses make up about 18% of the average IT budget — about the same cost as the IT operations staff — so why cut staffers when you could reduce your installed hardware instead?

"We're coming off a period when speed of deployment was valued higher than efficiency," Nicolett says. "If you look at most recently deployed systems, you'll find many with utilization levels around 30%."

Consolidating server and storage infrastructures can save 20% of their total costs, which could yield a total savings of about 3.6% of the IT budget.

Wring Savings O Systems, No

ut of t People

according to Nicolett. In a $2 billion corporation, the savings could equal $3.8 million.

Server consolidation is an excellent way to save on expenses and keep your existing hardware up to date, according to Ron Cook, senior director of strategic architecture and technical operations at RadioShack Inc.

Fort Worth, Texas-based RadioShack, which leases a significant percentage of its servers rather than buy them, is replacing smaller servers with larger ones and running multiple applications on those that remain, cutting both lease and maintenance costs.

"In the past, it was a little easier to have a new project running on its own dedicated hardware, and we were pushing a lot of projects out, so that worked," Cook says. "The leasing gives us a lot of flexibility. We're going on one box instead of two, two boxes instead of six, getting bigger boxes for the same cost or even lower costs."

The amount of savings will vary according to the specific needs of each company, but running fewer servers and relocating them to a central area should make administration easier and more consistent. It will also avoid the duplication of work that can result from maintaining servers doing similar work at several business-unit locations, Nicolett says.

Bargain Hunting

Changing the way you look at the servers themselves can also help cut costs, according to Mark Adams, vice president for bioinformatics at biotechnology research company Variagenics Inc. in Cambridge, Mass.

Buying leading-edge machines, even for compute-intensive applications such as the genome sequencers and analyzers that Variagenics and other biotechnology companies run, is often unnecessary. Unless the application requires mirrored servers, real-time backup and 99.9995% uptime, it's cheaper and easier to build basic servers or clusters purchased from off-brand dealers rather than to use name-brand equipment.

"It costs us about $130,000, including labor, to put together a cluster with about 100 just-behind-cutting-edge machines," Adams says. "We can get a white box with a [gigabyte] of real memory that uses name-brand components but doesn't come from Dell for around $900. Component-level sourcing of your gear is the way to go.

"If one of the boxes fuses, who cares? You just stop sending it jobs, yank it out and slide another one in there," says Adams, who puts the failure rate of the machines in his Linux-based clusters at about 2%.

It's not just how IT views the machines that can save money. Convincing users that they don't need expensive high-end machines or the ability to edit graphics or hook up digital cameras to do their work can also help.

"The average office worker is not designing airplane wings," Adams says. "They do not need to have the latest and greatest software."

Variagenics staffers get copies of Microsoft Office, but their e-mail client is Netscape Communicator, not Microsoft Outlook, because it's free and is hacked less often. All data is stored on central servers, and desktop PCs are usually replaced rather than repaired.

"The word to save money is easy," Adams says. "It starts with *N* and ends with *O*."

Being willing to buy spare parts and do the maintenance yourself or, better yet, pressing the vendor for lower maintenance costs is another good way to save money, especially when profit margins on ongoing maintenance contracts average around 30%, Cook says.

"Just as a matter of routine now, we renegotiate as contracts come up rather than renew," says Cook. "In new contracts, we're trying to limit the amount of increase over the time of the contract in maintenance, or [we're] asking for the first year of maintenance free."

RadioShack has negotiated with contractors for cheaper maintenance on servers, data communications equipment, phone and independent software vendor services, and mainframes, adding up to significant savings in its operational budget, Cook says.

Cutting Maintenance Costs

Hardware isn't the only thing you can consolidate. Buying business intelligence tools or other software that can be used by more than one department or that can do more than one type of analysis can also stretch your spending, according to Patrick J. Wise, vice president of e-commerce at Landstar System Inc., a $1.5 billion trucking company in Jacksonville, Fla.

"If you can go to the CFO and say, 'I can solve this problem for X amount,' that's good, but if you can solve five problems with the same expenditure, it's that much better," Wise says.

That said, short of laying off workers, pressing vendors for discounts is still the simplest way to cut costs, explains Cathie Kozik, CIO and senior vice president at Tellabs Inc., a communications equipment vendor in Naperville, Ill.

"We're squeezing them as hard as we can. Our first reaction in some cases was that the contract was only six months old, [so] we couldn't renegotiate. But even then, the vendor would come back and say OK," says Kozik, who is saving 10% to 25% on software costs, mostly on maintenance.

"We said to vendors that as we grew, you benefited because you were able to sell us product. Now you also need to share when the times are tougher," she says. "Most of them realize that if they want to keep us for the long haul, they would have to pony up."

Even Hopkinton, Mass.-based EMC Corp., whose reputation for selling high-end storage at high-end prices is well established, is offering Kozik prices that are competitive with those of lower-cost vendors, she says.

Dell Computer Corp. and other equipment manufacturers are also willing to deal, if it's clear that a user is willing to go somewhere else for big purchases, says Adams, who uses name-brand machines for user desktops.

All of these tactics require IT organizations to have enough operations staff to handle the work of consolidating the servers, moving the applications, negotiating the deals and maintaining service levels. That means that organizations that slash personnel as a first cost-cutting maneuver may be unable to take advantage of other methods later, Nicolett says.

"We see taking out the slack in IT resources as an alternative to cutting staff," he says. ◗

Fogarty is a contributing writer in Sudbury, Mass. Contact him at kevinjfogarty@yahoo.com.

Austerity 101

Three things to remember:

- **Don't set barriers for yourself, like thinking a contract can't be negotiated.** Deals that look closed might not be. Look for opportunities, especially where others have missed them.
- **Remind yourself of the value you add to the corporation and the impact your department has on the bottom line.** Focus on how to attract new business and add services for existing customers. Make sure anything you recommend is focused on the bottom line and not an IT priority that doesn't translate to the rest of the business.
- **Make sure all your projects are aligned with the needs and forward progress of the business.** Don't launch projects that address a need that has already passed.

Online Exclusive

Read about how one company gets more mileage from its new technology by developing its own client/server software.

www.computerworld.com/q123007

Keeping Tabs on IT P

Field Report: Project Management Tools

These powerful software tools are moving beyond their traditional role of spitting out task plans and Gantt charts. They're communicating better by becoming Web-enabled, and they're extending across the enterprise and rolling up multiple projects for portfolio analysis. They're also incorporating related functions such as human resources management. Just keep in mind that using a project management tool isn't the same thing as managing a project.

By Gary H. Anthes

Capable, but Not Complete

TECH CHECK Software packages for project planning, scheduling, tracking and related functions are powerful and mature. Organizations that generally complete projects on time and within budget nearly always use such tools because they help keep projects on track and spotlight troubles early on. But don't confuse using these tools with actually managing projects. Pitfalls often abound.

The most powerful packages can be hard to use, calling for rigorous training. Thea Ewing, manager of e-business initiatives at the Sperry Marine unit of Northrop Grumman Corp. in Charlottesville, Va., uses Houston-based WST Corp.'s Open Plan project management package and its WelcomHome Web portal for collaboration. But, she says, "it's hard for people to learn how to use Open Plan because it's so powerful and they get overwhelmed." To simplify things, Ewing uses a project template with standard settings as a starting point.

Managers above the project level must support and enforce tool use and review and act on reports to ensure that outputs aren't fudged.

Tools may not capture some vital information. Matt Bright, the enterprise project management tools strategist at a large financial services company that he asked not be named, says that "project management tools get maybe 50% of what you're doing. But how do you communicate that 'I didn't do anything [because] I was out of the office'? That's a huge question."

> Project management tools get maybe 50% of what you're doing, but [they can't know] that I was out of the office.

Project tools often don't interface well with vital, related applications such as labor, cost accounting or project portfolio management systems. Bright says most tools only capture hours worked on a project.

Paul Chartier, a senior MIS manager at Friendly Ice Cream Corp. in Wilbraham, Mass., uses Microsoft Project 2000, but he says it's not useful for comprehensive human resources management because "the question 'What are they doing?' arises time and time again," but it can't give him the answer.

Even related tools from a single vendor may not work well together. Chartier cites synchronization errors between Project and Project Central. "Documentation doesn't address these issues," he says. "Vendor support has no answers, and escalation may not get a quick respouse."

But for all those caveats, project management tools are becoming better suited to large organizations. There's a trend at larger companies to set up enterprise program management offices, and they need enterprise project management tools, says Melinda Ballou, a senior research analyst at Meta Group Inc. in Stamford,

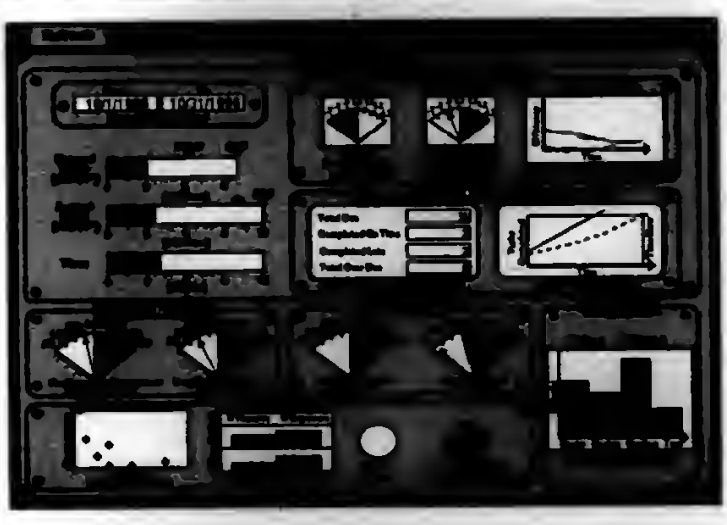
Driving the Data

FIELD NOTES According to project management guru Ed Yourdon, chairman of Cutter Consortium in Arlington, Mass., no commercial project management system provides a one-page display that offers key project performance metrics at a glance. He likens the feature to a car's dashboard, where a driver can see in a second or two whether the engine is overheating or the gas tank is empty.

"The problem that management at every level has is that the reports they get are often very voluminous, so you are overwhelmed with stuff," Yourdon says.

To prove that it could be done and to show its value, the Software Program Managers Network, sponsored by the U.S. Department of Defense, developed just such a project dashboard. The Project Control Panel is a Microsoft Excel-based tool that can import data from Microsoft Project. It can be downloaded for free from *www.spmn.com/pcpanel.html*.

The panel fits on a single screen and, using bar charts and gauges, reports key metrics in areas related to project changes, staff changes, quality, productivity, progress and risk (see example at right). If the arrow in a gauge is in the user-specified red zone, the project is in some degree of trouble.



Projects

Conn. "What's very important, and now emerging, is the ability to do portfolio analysis across programs and projects," she says. Bright notes that project management systems are evolving from single projects to portfolio and resource management.

Portfolio analysis (see QuickStudy, page 52) is becoming important. Bright's firm picked TeamPlay from Primavera Systems Inc. in Bala Cynwyd, Pa., partly for tasks such as portfolio analysis. For IT, product development and marketing projects, TeamPlay replaces "Microsoft Project, Excel and napkins," he says.

At Northrop Grumman, the WelcomHome Web portal lets Ewing look across 11 IT projects for portfolio management. For example, she manages the test phase of all engineering projects, and she can treat testing as if it was a single project. "We do all our proposals in Open Plan," Ewing says. "When we get the award, the project plan is already set up."

She says Open Plan produced all the reports the company needed for its bid to be rated at Level 3 of the Capability Maturity Model developed by the Software Engineering Institute at Carnegie Mellon University in Pittsburgh.

Online Exclusive

■ For information on how templates aid project management, visit the *Computerworld* Web site:
www.computerworld.com/q?27505

Quick Link

■ And for an extensive resource list, go to:
www.computerworld.com/q?27501

COMPETITORS Products to Choose From

HIGH-END ENTERPRISE PROJECT MANAGEMENT SYSTEMS

■ **Artemis International Solutions Corp.**
Boulder, Colo.
(www.artemispm.com)
ViewPoint: Project management and Web-based collaboration
PortfolioStreamer: Portfolio analysis and management

■ **Hitachi Corp.**
Redwood City, Calif. (www.hitachi.com)
Portfolio Manager: Planning, estimating, scheduling, resource inventory, collaboration and methodology templates
Director: High-level project summaries and controls for executives
Revenue Manager: Project time and expense accounting, invoicing and revenue management

■ **PlanView Inc.**
Austin, Texas (www.planview.com)
PlanView: Project, revenue and time and expense management

■ **Primavera Systems Inc.**
Bala Cynwyd, Pa. (www.primavera.com)
TeamPlay: IT project management
Enterprise: Enterprise project management and portfolio analysis
Expedition: Contract management and document control

■ **WST Corp.**
Houston (www.wst.com)
Open Plan: Project management, project analysis and resource management
WelcomHome: Web-based collaboration and scheduling access
Cobra: Project costing, earned value analysis, and budgeting and forecasting

MIDTIER PROJECT MANAGEMENT SYSTEMS

■ **Microsoft Corp.**
(www.microsoft.com)
Project 2000: Project planning, scheduling, tracking
Project 2002: Available mid-2002
Project Standard: Upgrade of Project 2000
Project Professional and Project Server: New features for enterprise analysis and resource management

■ **Business Engine Software Corp.**
San Francisco
(www.businessengine.com)
Business Engine Network: Web-based executive portfolio management, financial management and budgeting, third-party relationship and contract management, and time and expense accounting. Can be bundled with Microsoft Project 2002 for detailed project management and enterprise resource management.

■ **Pacific Edge Software Inc.**
Bellevue, Wash.
(www.pacificedge.com)
Project Office: Project portfolio management

■ **Advanced Management Solutions Inc.**
Redlands, Calif.
(www.amsonline.com)
RealTime Projects: Schedule and cost management
RealTime Resources: Resource management

SPECIALTY OR NICHE PRODUCTS

■ **Rational Software Corp.**
Cupertino, Calif. (www.rational.com)
Products support project management, requirements analysis, programming, modeling, testing and documentation

■ **QSM Inc.**
McLean, Va. (www.qsm.com)
Products for schedule and cost estimation, project tracking and oversight, benchmarking and process improvement, and adaptive forecasting

■ **Software Productivity Research Inc.**
Burlington, Mass. (www.spr.com)
Tools for estimation, benchmarking and function-point analysis

Problems to Watch For



Ed Yourdon, chairman of Cutter Consortium, an IT consulting firm in Arlington, Mass., outlined some of the potential pitfalls to avoid in using project management tools.

What mistakes do people make? The project management package tells you pretty clearly that you're behind schedule and getting further and further behind with each passing day – but no one wants to confront the problem. In many cases, it indicates a project that was doomed from the beginning because it had too optimistic a schedule.

What's your "breathalyzer test" for projects? Someone from outside comes in and asks for a current set of reports. That's when you discover that the project management system hasn't been updated in three months. Then, if you do get reports, you ask simple questions like, "I see you have Joe Schmoe assigned to seven different tasks. How did you expect that to happen?"

But are there problems you might not spot looking at those reports? Project management tools give you a particular set of rose-colored glasses through which you view the world, and some very important things are not in the reports, such as unpaid overtime. In many companies, it's not only unpaid but unreported. Yet any veteran project manager will tell you there comes a time when people collapse from exhaustion, and you really want to keep track of that.

I often ask for an updated report on the project's top risks. If I get a blank look from the project manager, that's a pretty telling thing. And that's not going to be in any project management tool.

Better Bang For the Buck

CASE STUDY

WHO THEY ARE: A testing agency for naval weapons

GOAL: Improve project management and reduce project administration costs

CHALLENGES: The Naval Undersea Warfare Center tests torpedoes, but projects can also go down the tubes. Previously, project managers would manually enter data into Excel spreadsheets, not to keep track of projects, but to fulfill a reporting requirement.

STRATEGY: Implemented Microsoft Project 2000, Enterprise Project and Project Central. It also added custom reports and a front-end wizard to make Project easier to use.

ISSUES: "Engineers believe there is nothing more important than getting the product out the door," says Mary Langguth, a business officer at the center. "To them, project management is building something, and all that other stuff is just administrative."

PAYOFF: Langguth says the engineers are sold on Project because they see that it can help them keep track of projects and communicate progress with customers. "There's a real emphasis on letting the customer know early that the project is in trouble, rather than at the end," she says.

PLANS: Project 2002 will omit some custom reports and add collaboration, portfolio analysis and resource management.

Dead In Its Tracks



Stopping IT projects before they fail in the field will save money — and IT's credibility. By Mark Hall

IDENTIFYING THE lost-cause IT project is no easy task. It requires a rigorous and constant evaluation of objective metrics and an intuitive understanding of business priorities.

But when you find such a project, IT managers and consultants say, it's critical that you shut it down quickly and efficiently to save your company's money — and your department's credibility.

"We look at project shutdown as an option at every stage of a project," says Suzanne Hydel, project office coordinator at Petroleum Co. of Trinidad & Tobago Ltd. in Point Fortin, Trinidad and Tobago.

Petrotrin, as the company is known, was formerly a Texaco subsidiary and is now owned by the government. The company has about 25 IT projects under way, Hydel says, and they are all under close scrutiny — with good reason. Two years ago, a Texaco-era effort to add a third-party financial applicatioo to the company's SAP installation was killed, and last year, the IT department halted the development of a human resources database, Hydel recalls.

Although they were shut down for different reasons, pulling the plug on both projects before implementation saved the company a significant amount of cash. "You spend the most money on implementation, oot planning," she says.

Losing money by pursuing troubled projects isn't the only risk. You also risk the IT department's credibility inside the organization.

Regaining Trust

"IT is constantly fighting for its credibility," says Raj Kapur, vice president of the Center for Project Management in San Ramon, Calif. "If they're [just] order takers, they're not bringing strategic value."

At Houston's BMC Software Inc., the hardest step in rolling out a customer relationship management (CRM) application was regaining end-user trust.

"The first and tallest hurdle we had to leap was user take-up, especially from those who had experienced two prior CRM project failures," says Mark Meyer, director of CRM and e-marketing. He says the initial projects floundered because user and business criteria weren't clearly defined or measured by IT.

Once the decisioo to kill a project is made, the next step is critical, says Kapur.

First, put together a cancellation plan. Make sure you consider all of the project's stakeholders and the budget implications carefully. For example, the project may involve contracts with business partners in your supply chain, so your legal department will need to know. And if terminating a project requires slashing head count, check with human resources ASAP.

Once that's done, Kapur says, it's time to tell the key people, such as the project's sponsor and the team leader, that the project is doomed — before making a public announcement.

Next, get the project team to salvage valid work like usable code and testing methodologies. Then debrief the team and have new assignments ready for the staff.

Lessons Learned

IT consultant Robert Wourms suggests publishing a "lessons learned" report that emphasizes both business and technology lessons from the failed project. Wourms, director of the IT consulting practice at PM Solutions Inc. in Haverton, Pa., says, "Most CIOs want to look good not just as an IT professional, but as a business player."

Online Exclusives

- A simple questionnaire can tell you whether a project should get the ax or a reprieve. www.computerworld.com/q727368
- A list of Web sites devoted to troubled projects and bad management: www.computerworld.com/q727367

Wourms says it's critical that IT managers be decisive when faced with a doomed project. "Make the decision before the CFO tells you," he warns.

Hydel says project managers should be trained on how to detect a failing project as early as possible. Otherwise, she says, "project managers take the project to their heart, and they want to run with it to the end."

How to Spot Risks and Rewards

Plowing ahead with IT work while oblivious to whether it's really important to the company is all-too-common and oh-so-wrong, says Robert Wourms. As director of the IT consulting practice at PM Solutions, Wourms argues that IT project managers must create "a model based on business drivers that each project gets filtered through."

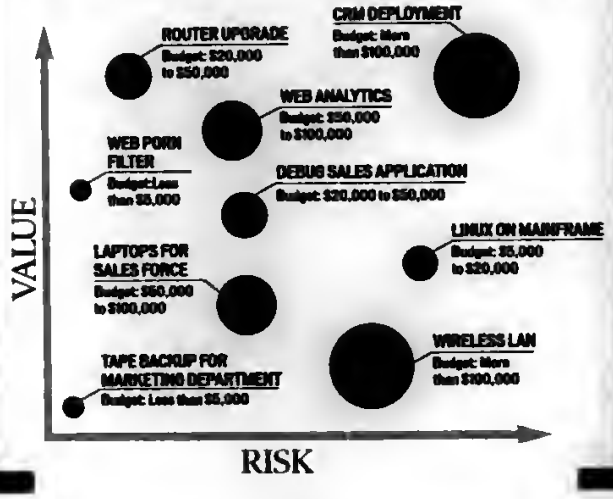
The model, or balanced scorecard, is developed for each project "using business drivers such as how it contributes to market share or cost-cutting strategies," Wourms says.

These drivers comprise variables that are given a value, based on business priorities.

Once values are given, you can rank the importance of each project to the organization using a simple Excel scatter graph. For example, the graph can depict where a project falls in relation to its risk and its importance – with the size of the dot indicating the project's costs.

"As business drivers change, you simply feed that data into the model's values, and its location on the graph will shift accordingly," Wourms says. "It takes subjectivity out of the issue."

– *Mark Hall*





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Project Portfolio Management

BY MELISSA SOLOMON

THE IMPORTANCE OF diversification has been one of the toughest lessons learned from Enron Corp.'s bankruptcy.

It's nothing new, though. In fact, diversification has been a staple of the financial world for half a century.

But the idea of IT portfolio management has been tossed around academic circles only since the 1980s, and for the most part, it didn't started making its way into IT departments until a few years ago.

As its name implies, project portfolio management groups projects so they can be managed as a portfolio, much as an investor would manage his stocks, bonds and mutual funds. In the 1950s, University of Chicago economist Harry Markowitz wrote that a portfolio of diverse investments is more likely than individual investments to reduce risks and produce a higher rate of return.

QUICK STUDY

In the IT world, the obvious benefit of project portfolio management is that it gives executives a bird's-eye view of projects so they can spot redundancies, spread resources appropriately and keep close tabs on progress.

DEFINITION

Project portfolio management organizes a series of projects into a single portfolio consisting of reports that capture project objectives, costs, timelines, accomplishments, resources, risks and other critical factors. Executives can then regularly review entire portfolios, spread resources appropriately and adjust projects to produce the highest departmental returns.

But what's most appealing to many CIOs is the focus on projects as a portfolio of investments. Discussions aren't just about how much a project will cost, but also about its anticipated risks and returns in relation to other projects. This way, entire portfolios can be jiggered to produce the highest returns based on current conditions.

Since the recession began, companies have been looking at the multimillion-dollar IT investments made during the past decade and trying to determine what returns, if any, they saw from those investments and what they can expect in the future.

That's where portfolio management comes in. It takes a lot of details and organizes them in an easily digestible form. It helps executives see where money is spent, why projects are or aren't necessary and what resources are needed.

A growing number of vendors offer project portfolio management software, which has dramatically simplified the process of building a portfolio. But the first step, says Howard Rubin, executive vice president at Meta Group Inc. in Stamford, Conn., is for companies to prioritize their business strategies. Portfolios can then be assembled and assessed based oo how they meet those strategic needs.

Previously, projects were approved and theo managed independently. They were evaluated as a whole at the executive level only when it came time to put together annual reports. But, says Rubin, in markets that move every day, a company needs that overall view so it can keep an eye on projects in real time to make sure that all of them are working together to meet core business goals.

A Closer Look

Once companies determine the business priorities they want their projects to meet, they need to break down the portfolios.

The California Public Employees' Retirement System (Calpers) includes in its portfolio all projects that last more than 30 days and 100 hours, says Kim Gibbs, who runs Calpers' IT resource management division.

New York-based Verizon Communications has a series of portfolios. IT teams are assigned to different business units, and each of those teams handles a separate portfolio. So, for instance, all of the finance and administrative-support projects make up a portfolio that's maintained by one manager who reports back to the CIO, according to Skip Patterson, executive director of business planning and development at Verizon.

Next comes the hard part: developing the metrics used to measure a portfolio's success.

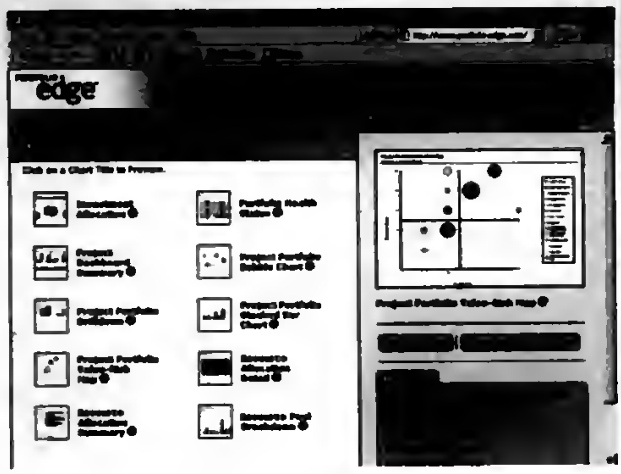
Energy Northwest, a Richland, Wash.-based public utility, established 10 milestones, such as project plan approval and design work completion. Those milestones are tied to performance indicators and bonuses for project managers. If someone misses a milestone, be has to write a trouble evaluatioo report explaining why.

"You've got to lay your laundry out all the time," says Jim Parker, engineering project control supervisor at Energy Northwest, which uses portfolio management software from Pacific Edge Software Inc. in Bellevue, Wash. (see screenshot, below).

Calpers uses stoplight reports from Bala Cynwyd, Pa.-based Primavera Systems Inc. that break metrics down into red, green or yellow fields. So if a project is about to fall behind schedule, for example, or the project team's resources are being maxed out, the report will fall into the yellow-light category, indicating that the portfolio needs adjustments.

Verizon, one of the pioneers of IT portfolio management (its predecessor, Nynex Corp., started the process in 1992), uses a detailed set of metrics developed by its CIO and portfolio managers. Once each month, the managers and CIO review each portfolio's progress on those metrics.

"You can create a kind of friendly competition between and among the portfolios," Patterson says. "It's highly effective. . . . For some, it's a religion."



THIS SCREENSHOT from Pacific Edge Software's Portfolio Edge Product shows the kind of information that can be summarized on a single screen. A wide range of charts, covering everything from investment allocation to resource allocation, helps keep track of what's going on with a portfolio of projects. A "dashboard" gives a bird's-eye view of project progress.

Online Exclusive



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POL TURGEON

VENDOR-PROVIDED Web-based tools for calculating customers' returns on investment in hardware, software and other gear are all the rage in today's show-me-the-value budgeting climate.

Log on to SAP AG's SAP.com, answer a series of questions about your company's annual revenue, profit margin, cost of capital and business processes — and presto! Five or six minutes later, the online calculator "will reveal how much your company can benefit by taking the next step in the CRM revolution."

ROI

Spend another five or six minutes with SAP's supply chain management value calculator, and it will tell you "how much your company can benefit when it takes the next step in e-business evolution."

Skeptical? You should be.

Polly Foote's initial reaction to ROI figures served up by Pleasanton, Calif.-based PeopleSoft Inc.'s online calculator was pure astonishment. As a human resources business analyst at Ferguson Enterprises Inc., a $5 billion plumbing supply distributor in Newport News, Va., Foote last June was trying to make a business case for upgrading to a newer version of the vendor's human resources software.

"The first numbers that we came out with said the ROI was going to be 798% and the internal rate of return was going to be 102%," Foote recalls. "Obviously, those numbers are pretty astounding."

So Foote reworked the numbers, excluding so-called soft benefits that PeopleSoft said could accrue from using its new software. On the second try, she also plugged in actual data about Ferguson's employees and their

User Beware, page 56

User Beware

Many vendor-provided ROI calculators offer only a veneer of objectivity. By Julia King



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User Beware

Continued from page 54

salaries and benefits, rather than relying on industry benchmark data provided by PeopleSoft.

The result: a significantly lower ROI figure of 212%, a 42% internal rate of return and a project payback period of 2.6 years.

The lesson learned, Foote says, is if you do use a vendor's calculator, do so with caution.

"What the calculator does for you is put into hard dollars your argument [for new or enhanced technology]. It gets you to the bottom line that executives want to hear because that's their language," Foote says.

"The caveat [about using the calculators] is that you customize all information to your company," instead of using the benchmark data that the vendor may provide, she says.

One Size Doesn't Fit All

As a wholesale plumbing distributor, "we don't usually fit into benchmarks real well," Foote explains. "Benchmarks are for companies where 100% of employees have Internet access and are computer-savvy. Here, we don't sit at desks and use computers all day. Our guys are out in the warehouses and in trucks, and they work at branches with customers. "Our numbers did go down because they were appropriate to our workforce," she adds.

Experts echo Foote's advice.

"If it's not exactly what your environment looks like, it's not an effective tool," notes Shally Bansal Stanley, director of the network economics practice at Greenwich Technology Partners in White Plains, N.Y.

Bansal Stanley adds that it also should be clear to the user exactly how the online ROI calculators come up with results.

"ROI calculations shouldn't be complicated. They're based on rules and criteria which should be transparent. You add or subtract," Bansal Stanley says. "My standard advice is to be very skeptical and not use vendors' ROI tools unless you're able to figure out what exactly the ROI formula is doing."

But many service and equipment vendors' online ROI tools include projected measurements for vaguely defined soft benefits, such as improving customer satisfaction

In these cases, Bansal Stanley recommends stripping out the actual cost information that the tool may provide, such as software licensing fees and upgrade and maintenance costs.

After that, "throw away the rest of the vendor's model because it has so much smoke and mirrors that it is too hard to decipher," she says.

Privacy is another factor to consider. Extract whatever cost information you need, then log off the vendor's Web site and do your own ROI calculations off-line to keep a lid on sensitive company data, says Ian Campbell, president of Nucleus Research Inc., a Wellesley, Mass.-based consulting firm that specializes in IT ROI.

Some vendors with online ROI programs are continually gathering and storing the information that users enter, notes Campbell. "Every time you hit the Submit button, that information is going into a [vendor] database," he says.

Keeping It Confidential

Nucleus also develops ROI modeling tools, which it offers for free at its Web site (*www.nucleusresearch.com*). But Campbell notes that all of the tools are Excel-based, meaning users can download them to their desktops, without fearing that a vendor at the other end is collecting data. "It's not a black-box approach," Campbell says.

SAP, on the other hand, collects and keeps the information that Web site visitors enter.

"The information is not sold or shared around the company, only with the account executive" who can use the information on a subsequent sales call, says Ed Brice, an SAP vice president of marketing.

For its part, SAP doesn't explicitly inform users upfront that it is collecting information they put into the online value calculators. However, the SAP Web page does contain a link to the company's privacy statement, which indicates the kinds of information the company collects from online users and what it does with the data.

One final note of caution about vendor-provided online ROI tools comes from P.J. Bartlett, a vice president of marketing at Arbortext Inc., an Ann Arbor, Mich.-based software vendor. It has to do with what Bartlett calls "the veneer of objectivity." This happens when a software vendor brings in a so-called neutral third party, such as an analyst firm, to help develop the tool or provide benchmarking data that becomes part of the vendor's ROI offering.

For example, PeopleSoft hired Baltimore-based Cedar Group PLC, a human resources consulting and outsourcing company and a certified PeopleSoft partner, to help build its ROI calculator.

Similarly, SAP promotes the fact that it hired Pittiglio Rabin Todd & McGrath, a Waltham, Mass.-based management consulting company, to help with its online tools.

Bartlett says the challenge facing software marketers today is this: "You're going to provide an ROI calculator, but how do you provide something that users believe?"

The answer? "You get somebody else to say it works," he says.

If You Insist

If you must use an online calculator, be sure to take the following precautions:

- Download the executable portion of the ROI calculator so you can do your calculations out of the vendor's sight.
- Use the resulting figures only as the broadest of ballpark estimates.
- Try to find a calculator from a third-party provider, instead of using a vendor's marketing-driven tool.
- Plug in your own cost figures. Don't rely on vendor-provided benchmarks.
- Expect to receive follow-up calls from the vendor asking to visit you and refine the figures.

NOT COMPLETELY WORTHLESS

YOU MAY NOT WANT TO PRESENT the figures they crank out to your board of directors, but online ROI calculators aren't altogether useless.

"For one thing, they acquaint [IT] people with some of the language of ROI and economic value, and that's a good thing," says John Berry, a Bend, Ore.-based management consultant who specializes in the economic value of IT. "But these calculations are meant to entice people, and they're not what should be used to make a final decision," he adds.

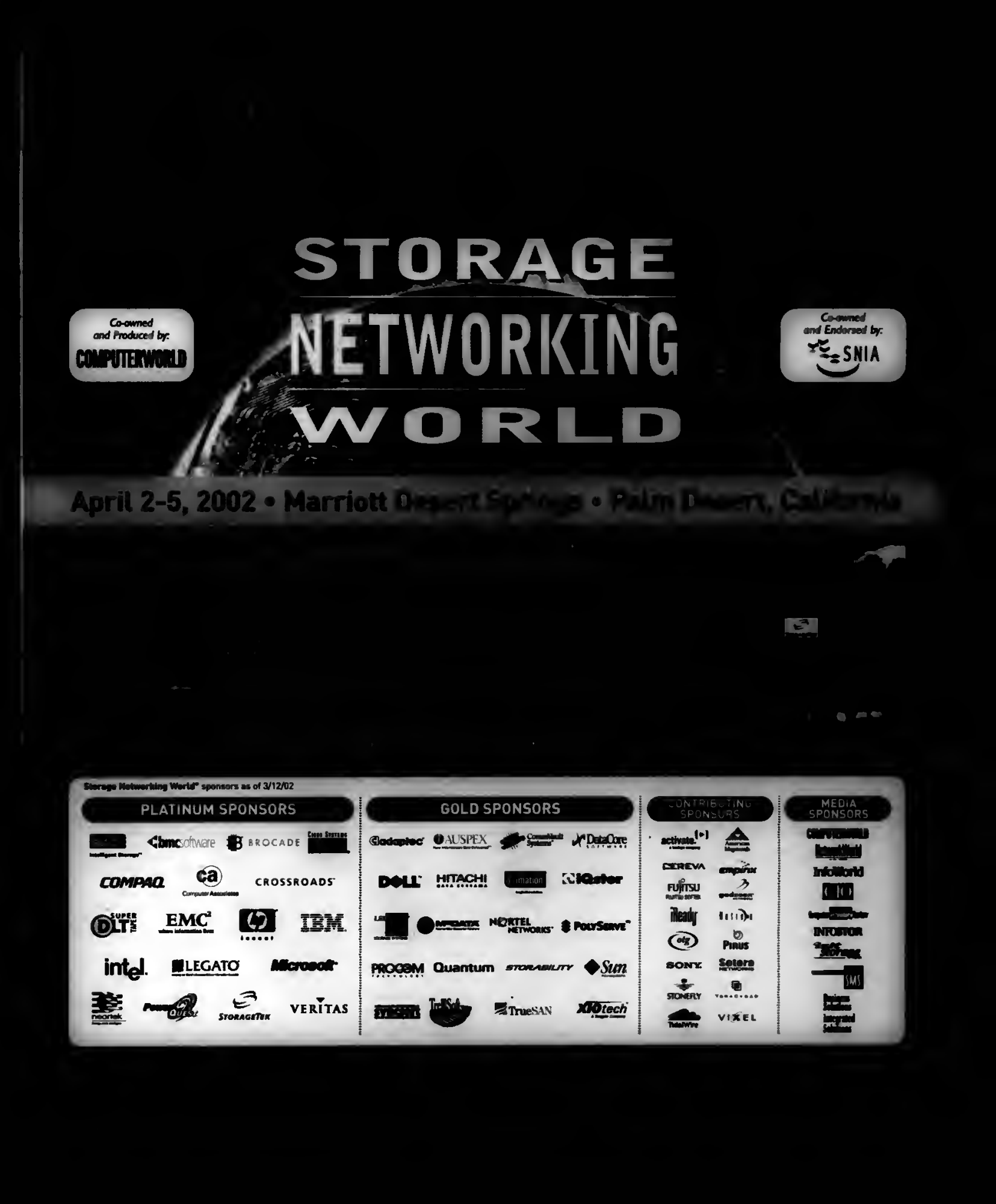
Noting that most online calculators provided by vendors center on that company's products, he says they're of minimal use to users comparing options.

"In the end, the value of these calculations is to start the discussion and help users understand the value of a particular software investment," Berry says. "That may very well be the limits of their value."

~Julia King

Online Exclusive

For a list of vendors that offer ROI calculators and links to their Web sites, please visit our Web site: www.computerworld.com/cgi-bin/[illegible]


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The ROI of Training

Payback comes from debriefing recently trained employees and having them apply their new knowledge — fast. By Julekha Dash

JUSTIFYING THE COST of training may not have been necessary in the days of generous bonuses, lavish parties and other perks of the dot-com era. But as companies cut back on salaries and staff, IT managers must demonstrate the return on investment for any expense, including training.

That can be tricky when you're assessing the effectiveness of a human capital investment. But IT managers say there are ways to make sure your company gets the most out of its training dollars.

Set Up Feedback Loops

Getting feedback through surveys or informal posttraining interviews is a good way to measure the effectiveness of your IT training, managers say. At United Stationers Inc. in Des Plaines, Ill., IT employees fill out a questionnaire following an IT training session, says Ergin Uskup, CIO and senior vice president of MIS. The company's training manager then has one-on-one follow-up conversations with employees to see whether the experience met their needs and whether they would recommend the class to colleagues.

Three months later, the training manager checks in again with employees and their managers to see if the training helped the employees improve their skills and was applied to their work. Managers then act on the information gleaned from these conversations. United Stationers "drops [training companies that] are not as effective and increases [its] partnership with [training companies] that receive a high [rating]," says Uskup, whose company allocates about $450,000 per year to train approximately 250 IT employees.

Kevin Bilbee, a network administrator at Standard Abrasives Inc. in Simi Valley, Calif., says his company is just beginning to craft a similar IT training strategy. The plan is to debrief workers after classes "so that everyone [else] gets an idea of what they learned," he says. That way, other IT employees know whether the class is right for them, says Bilbee. "We're trying to make training more efficient," he says.

Train Workers 'Just in Time'

Another way to maximize training dollars, say managers, is by putting the trainee's new knowledge to work right away. At United Stationers, employees get to work on projects related to their training immediately after the class about 75% of the time, says Uskup. In addition, the company gives priority to skills training that employees will need in the short term.

"We always try to match training with a task," says David Molchany, CIO of the Fairfax County government in Fairfax, Va., which annually spends $600,000 on IT training. Managers work with employees to create a plan for trainees to use their know-how soon after a class. For instance, if staffers attend training on installing Microsoft Corp. products, they might use what they learned when they return to work by performing a software implementation. Molchany calls this "just-in-time training."



USKUP of United Stationers: Employees follow training by working on related projects.

How companies evaluate a training program's actual ROI varies according to the goals they have for employees. Some managers say a training program has delivered value if it helps IT employees perform their jobs better.

Scott Hicar, vice president of IT and CIO at Milpitas, Calif.-based Maxtor Corp., says his company's goal in training is to keep employees' skills current and keep them excited about their work. The storage firm offers an array of training methods such as Web-based courses, vendor sessions and on-site workshops.

But, Hicar says, holding small workshops with technical experts has been the most effective method at his firm because it lets IT workers put their problem-solving skills to work. For example, this type of training helped Maxtor IT workers use reporting tools from San Jose-based Business Objects Inc. more effectively, says Hicar.

Uskup says his company's payback from IT training has been retaining its employees: For the past five years, the company has had only 5% turnover. Although that figure isn't as significant now during an economic slowdown, it was virtually unheard of during the Internet boom. Employee surveys at United Stationers indicate that the company's training programs contribute to employees' loyalty.

Dash is a freelance writer in Lewes, Del. Contact her at mail@julekhadash.com.

Leverage The Learning

- Have a plan for how students will put their knowledge to use
- Determine whether you will recoup training costs in the first year
- Use surveys to get feedback on the quality of training
- Be aware of hidden costs, such as time spent scheduling classes
- Determine which training methods work best for your employees
- Evaluate ROI by first establishing your goals for training (employee retention or better performance, for example)

Uncovering the Hidden Costs

If you're calculating the ROI for IT training, don't forget the less obvious costs such as lost productivity per IT worker, says Dave Murphy, membership director at the International Association of Information Technology Trainers in Elkridge, Md.

And remember that instructor-led training includes project management or administrative costs, says William Vanderbilt, director of operations for the technology learning group at IT association CompTIA in Oakbrook Terrace, Ill. These costs include the time spent signing up people for classes or accounting for people who will miss the classes due to scheduling conflicts.

Any training course will require five to 40 hours per week of project management time, depending on the complexity of the project, Vanderbilt says. If you're aware of these costs, you can prepare and budget for it, he says. If an external company is providing the training, Vanderbilt suggests that you get project management costs incorporated into the price.

So what's the ROI? It's unrealistic to expect a payback in a month. But after you've determined the cost of training IT employees, ask yourself whether the costs of training can be recouped in the first year, says Murphy. "We're changing people's behavior," he says. "It won't happen overnight."

– *Julekha Dash*

Online Exclusive

For tips on how to find the right training company, visit our Web site at: www.computerworld.com/t727543

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NICHOLAS PETRELEY

Invest Wisely

INFORMATION TECHNOLOGY has a unique relationship with ROI. Most departments seek to justify their investments with hard figures that show increased profits. IT seeks to justify its existence with touchy-feely measurements of productivity gains and customer or user satisfaction.

The problem with the latter is that there's no frame of reference against which one can hold IT responsible. How do you really know if you experienced any productivity gains by giving your users Microsoft Word to create documents instead of making them use the free copy of WordPad that comes with Windows? And how do you measure those gains against your investment in time and money to support Word?

OPINION

As for the "satisfied user," one can only hope that the average CFO will eventually wise up to this scam. Your CFO should ask one question before approving any IT budget during this sluggish economy: Will our employees be happier if 75% of them get the latest version of Outlook and the other 25% get a pink slip? Or will they be happier if we ditch Outlook and keep more people?

Regardless of how you might answer those questions, I believe we'd be better off if we focused more on the investment and less on the return. The following are three recommendations for investing:

1. Invest in the three-copy rule.
2. Invest in a security guru.
3. Invest in a hype filter.

Anything that a user saves to disk should be stored in precisely three locations: on a server, on that server's backup media and on a backup of the data that you store off-site. The only other place the data belongs is on more servers (such as a cluster), for high-availability needs.

If you don't think you can make the three-copy rule work, then you're not thinking hard enough. One thing you need to do is stop investing in the security of individual client machines and invest in the technologies that provide your employees with secure remote access to the company data from any client.

If you have 1,000 users running Outlook and a Trojan, virus or worm slips past your mail server, that means you have 1,000 machines at risk and up to 1,000 machines to patch or recover. If you provide those 1,000 users with a secure way to manage their schedules and e-mail via a Web interface to a server-side program, you have effectively reduced the number of machines you manage to a handful of servers.

The only other thing you need to worry about is how to wrap your other data, such as documents, spreadsheets and presentations, in least-common-denominator formats and protocols that any popular program can read. Aside from spreadsheets, almost everything else you do can be reduced to plain text and HTML.

Here is where you need to be brutally honest with yourself and your users. Most companies have a handful of people who really need the power of desktop publishing features. The rest can get by with automatic text wrap, cut and paste, and spell check as they type. They can save their work in plain text. If your users absolutely must have some cosmetic control, then HTML provides more than most people will ever use.

The best way to measure the ROI of a security guru is to *not* hire one. Then calculate the cost of recovery when your company gets hacked and compare that to what it would have cost to hire the guru.

I wish I could take credit for my final suggestion, but I got the hype-filter idea from my good friend and former editor Michael McCarthy. You can make this investment for as little as a part-time salary and the price of a pair of scissors. Hire a computer science student to spend a few hours per week intercepting technology publications before they get to anyone in management. His job as your company's hype filter is to cut out any advertisements and articles that hype the Next Big Thing and shred them, burn them and then stomp on them before they can infect the minds of the innocent. ◆



Buying Intentions

CIOs identified the following as their top IT investment priorities this year:



Base: 150 IT executives; multiple responses allowed

SOURCE: ABERDEEN GROUP INC., BOSTON, FEBRUARY 2002

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DIVERSITY IN IT CAREERS








Advertising Supplement



Diversity in the IT Field

By Jennifer Hicks

IMDIVERSITY.com

Diversity in the information technology industry is nowhere close to where it needs to be. Harris N. Miller, president of the Information Technology Association of America spoke before the U.S. House Committee in March of 2000. The statistics he cited were alarming:

- African Americans represented 5.4 percent of all computer programmers and 7.1 percent of computer systems analysts—two of the core jobs in the industry
- Hispanic Americans held 4.6 and 2.5 percent of these jobs, respectively.
- Native Americans represented only .2 percent of the total science and engineering labor force, yet they represent .7 percent of the total U.S. population.

In 2001, not too much changed. Although there were a significant number of African Americans in IT, "not that many have arrived at positions of power and decision-making," says Renee McClure, national president of Black Data Processing Associates.

And, with the recent stumbling economy, there's been a 44 percent drop in demand for IT workers in the U.S., according to the Information Technology Association of America.

The Information Technology Industry Defined

In its narrowest sense, the information technology industry is defined as those organizations concerned with furthering computer science and technology, design, development, installation, and implementation of information systems and applications. Yet professionals versed in any of those areas fit into every spectrum of the economy. And, because of this, even given the economic downturn, there are still some jobs where IT professionals are in great demand.

Computer Systems Analysts, Engineers, and Scientists

The need for systems analysts, engineers, and computer scientists is acute. In fact, this group ranks among the top 20 in the number of new jobs created through 2008, according to the 2000-2001 edition of the Occupational Outlook Handbook (OOH). While found in every sector of the economy, many computer analysts, engineers, and scientists are concentrated in the computer and data processing services industries—either as employees or independent contractors.

Programmers

There are two broad types of programmers—those who deal with systems and those who deal with applications. Employment of programmers is expected to grow between 21 percent and 35 percent through 2008, according to the OOH. Although programmers are found in every industry, the largest concentration is in the computer and data processing services industry.

Opportunity for Advancement

For seasoned IT professionals, promotions can be difficult—unless your employer provides training opportunities. Technology changes rapidly and unless one has up-to-date skills and training, moving up the corporate ladder can be impossible. Those organizations that provide access to training—and thus "grow their own" IT pros—are also more likely to make career advancement possible within their organizations.

Perceptions of Those in the Field

A 2001 survey by the Information Technology Association of America, *IT Magazine*, and *U.S. Black Engineer* found that the primary reason people entered the IT field was for training opportunities and professional development, followed by salary and benefits.

African Americans were the primary respondents (78 percent) to the survey, followed by white Americans (10 percent), Asian Americans (7 percent), Hispanic Americans (3 percent) and Native Americans (1 percent). Fifty-five percent of the respondents were men and 45 percent were women.



Men cited early exposure to the industry as the reason for entering; women cited prior work experience. The report surmised that we should "be mindful of how young persons in target populations encounter technology" and that we could face serious consequence if we don't introduce girls to technology at the same rate we do boys. Many respondents also said they believed many women and minorities were not aware of opportunities within the industry and suggested that more internships and mentoring could help raise awareness and interest.

Author bio:

Jennifer Hicks, author of several hundred articles and who lives in the Boston area, is the director of online content for IMDiversity.com http://www.imdiversity.com, the Web site where opportunities, careers, and diversity connect.

IDG Recruitment Solutions and IMDiversity.com are partnering to produce career related advertising supplements focusing on Diversity in Information Technology. Our next supplement is scheduled to run on May 13, 2002*.

For more information about advertising, please call Jenna Crowley at 800-762-2977, ext. 7087.

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...Microsystems	Computer Associates Int'l
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e-mail kellyhughes@teletech.com
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Fax: 303-397-8642.

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We are seeking an Oracle Developer to join our IT Staff in the Atlanta area. A BS/BA degree in Computer Sciences or related field & 3 or more years related exp required. Must possess a working knowledge of Forms 6i, Reports 6i, PL/SQL. Triggers & must have worked with Packages & have the ability to design & produce Forms & Reports under minimal supervision. Working knowledge of SQL Navigator helpful. Salary $68,200. Send resume, current address & citizenship or visa status to: **Namasco Corporation, 500 Colonial Parkway, Suite 500, Roswell, GA 30328 or Email**, jrosa@namasco.com & attach resume as Word document. EOE.

divine, inc. computer software applications developers and consultants, are seeking qualified applicants for the following positions: Systems Engineer, Senior Application Integration Engineer, Staff Software Engineer, Senior Software Engineer, Senior Engineer, Software Engineer, Sr. Consultant, Consultant, Director of Development and Integrations, Development Director, Loader/Development Team Lead, Gateway Developer and Director. Openings are available at the following locations: Fairfield, CT, St. Louis, MO, Burlington, MA, Chicago, IL., Denver, CO, Norcross, GA, Columbus, OH, and Santa Monica, CA. Interested applicants should forward their resumes, divine, inc., Attn: DK 1, 3333 Warrenville Rd., Lisle, IL, 60532 or by fax addressed to DK 1 at 630-799-0060. EOE

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You will be responsible for researching changes or enhancements to 2+ existing features, product install processes, tools, standards & processes. Other duties include testing & verifying system & database modules to ensure quality & integrity. Requires a BS (or equivalent) in Computer Science, Business, or related field and 5 years of related work experience. Experience must include supporting PC's, mainframe or web-based environments, researching & developing feature enhancements for specialized software & software installation. Proficiency in MS Office and SQL also required. Position is full-time, 40 hours/week.

Siemens Health Services specializes in developing clinical, financial, and management solutions that support leading health providers across the continuum of care. As an integral part of our organization, you'll enjoy highly competitive compensation, including a wide array of benefits, and professional development opportunities.

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Software Engineer
You will be responsible for designing, coding, implementing & testing complex product enhancements. Duties include searching a new feature's concepts & establishing & coordinating plans, analyzing problems & suggesting innovative solutions; designing & testing plans; training & reviewing design work of programmers. Requires a BS (or equivalent) in Computer Science, Computer Engineering or related field and 3 years of related work experience. Experience must include Object-Oriented Programming, design & analysis; proficiency in C++, Visual Basic, SQL Server, Rational ClearCase, Rational Rose & COM. Full-Time position, 40 hours/week.

Siemens Health Services specializes in developing clinical, financial, and management solutions that support leading health providers across the continuum of care. As an integral part of our organization, you'll enjoy highly competitive compensation, including a wide array of benefits, and professional development opportunities.

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Project Managers needed MSS Technologies, Inc., a Phoenix, AZ company has senior and mid-level positions available for qualified candidates possessing MS/BS or equivalent and/or relevant work experience. Work with 2 of the following: JD Edwards Financials/Distribution/Manufacturing Suites, JDE Application Tools, Oracle, PL/SQL, COGNOS, MS SQL. Mail resume to MSS Technologies, Inc., Attn: HR, 3202 E. Harbour Dr., #1, Phoenix, AZ 85034.

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Senior Programmer/Analysts needed Houston, TX based company is seeking qualified applicants possessing MS/BS in Computer Science/Engineering or equivalent and/or relevant work exp. Exp. must include 1 yr. of designing, developing and integrating ECommerce applications. Work with 3 or more of the following: C++, VB, COM+, ADO, XML, ASP. Mail resume to DataCert, Inc. Attn: Recruiter, 3100 Timmons, Suite 310, Houston, Texas 77027.

SENIOR APPLICATION DEVELOPER Analyze and develop batch and on-line application systems, interfaces, reports and queries. Lead assignments of others and manage projects. Requires expert technical knowledge in University of Michigan 7.5 Financial modules and interfaces including Procurement, Accounts Payable, General Ledger, Inventory and Asset. Demonstrated expert technical knowledge of the interfaces between U of M PeopleSoft Higher Ed Student and HR products. Bachelors Degree in Computer Science or Information Technology or equivalent combination of education and experience. Over 7 years experience in application systems analysis, design development implementation and support. P-A grade 12. Fulltime/40 hours per week. Forward resumes to: M L Maher, University of Michigan Administrative Information Services, 2019 Ad Svcs Bldg, Ann Arbor, MI 48109-1432 or www.mmaher@umich.edu. A non-discriminatory, affirmative action employer.

Software Engineer. Develop, create, and modify computer applications s/ware & specialized utility programs. Bachelor degree in CS or similar major req'd as well as 2 yrs. exp. in job off'd or a s/ware devel or programming position. Prior exp. must include exp. w/Lotus Notes. Competitive salary. Resumes to Ernest Peckham, Resource Director. Job No. 1886.25, Computer Task Group, Inc., 5875 Castle Creek Parkway, Suite 208, Indianapolis, IN 46250.

SOFTWARE ENGINEER sought by computer consulting firm in Bellaire, TX. Requires M.S. in Computer Science. Respond by resume to: H.R. Rep., Y/H-810, BLUWARE, INC., 6750 West Loop South, Suite 945, Bellaire, TX 77401.

ITEC seeks Programmer/Analysts available to relocate to various unanticipated worksites across the US. Send resume's to fritz@itecusa.com

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Dallas, TX 75252

Assistant Software Engineer. Assist Software Engineers in designing & developing device driver. Program in C/C++ on Unix O.S. Test system by Unix C-shell Script & PCL5E. Req. BS in Comp. Sci, Comp. Eng, or Elect. Eng. 40 hr-wk. Job/Interview Site: El Segundo, CA. Send resume to Advanced Hi-Tech Corp., 1960 E. Grand Ave., El Segundo, CA 90245.

Sr. Automation Developer - Westminster, CO. Require experience in research and development of Unigraphics products/CAD/CAM/using: C, C++, UFUNC, OOP and GRIP. Attractive compensation package. Send resume to: Human Resource, CAD Potential, 1490 W. 121st Avenue #201, Westminster, CO 80234.

Senior Systems Analyst sought by telecommunication systems co. in San Jose, CA. to do Back End of high speed chips/full speed floorplanning/place and route/timing analysis/optimization using Avanti/HDRC/HLVS tools; develop P&R floor environment using Sun Solaris/UNIX/Windows/Perl/Verilog platforms. Must have Bach or equiv in Comp Sci Engg or equiv & 5 yrs exp. Respond to: HR Dept., Parama Networks Inc., 1955 The Alameda, 2nd Floor, San Jose, CA 95126 (Resume only, no phone calls).

Programmer Analysts. Analysis & design, research supportive data & write code, test & debug computer programs which will generate information reports & maintain data files, monitor program implementation. Min. Edu. B.S.(CS/Engg or equiv.). Min. Exp. 2 yrs. Sal. $65K/yr. Interview & Job site: Salt Lake City, Utah. Applicant must have legal authority to work in the US. Send this ad & resume to attn: Pat Redington, J.D #s 3061439 & 3061458, Utah Dept. of Workforce Security, 140 East 300 South, SLC, Utah 84111.

Software Engineers. Design, develop, test and implement specialized software apps using C, Java, Perl, Visual C++, Pro*C, Oracle and related tools, Shell Script on NT/UNIX. Prevailing wage & benefits. HR: Sumedha, Global Computing, Inc., 2356 American River Dr., #D, Sacramento, CA 95825.

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Mapesco Software Inc., a leading IT consulting firm is looking for qualified IT professionals. (Some frequent travel to various job locations may be required.)

We need experienced Software Engineers/Sr. Soft. Engineers/Programmer-Analyst in the skill areas of Siebel-Scopus/Vantive/Clarify/Siebel.

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Qualified applicants send resumes to: HR Manager, Mapesco Software Inc., 222 W. Las Colinas Blvd. #539E, Irving, TX 75039.

Senior Programmer/Analyst: A US residential & commercial roofing manufacturer is seeking a Senior Programmer/Analyst who will be responsible for maintaining & enhancing CRS, a N-tier internal pricing application that uses XML, XSL & ASP in the front-end, VB components in the middle & ORACLE 8.0 database in the back-end. Req'd: B.S. degree in Computer Science with 5 yrs. exp. in the job offered or as a Programmer/Analyst. Must have exp. w/ASP, VBASIC, ORACLE & Crystal Reports. Send res. to: Kathryn Schoenbaechler, GAF Materials Corp., 1361 Alps Rd., Wayne, NJ 07470.

Paradigm Intotech is looking for programmer/system analysts, software/project engineers, and computer consultants. Candidate must have Bachelor's degree with at least one-year IT experience. Good skills in C/C++, Java, Oracle, WebLogic, VB, HTML are plus. Traveling is required for some positions. Please send resumes to 8850 Stanford Blvd., Ste. 1600, Columbia, MD 21045. EOE.

Analyst/Programmer sought by VA Consulting Co. to analyze user requirements, procedures and problems, develop detailed technical specifications for software development using software engineering principles, service and support for clients and customers; technical use of a ZIM developer on the TRANSDOC system; develops and modifies existing applications; and designs database structures. Min. req. Bachelor's Degree or equiv. in Computer Prog/Analyst. Resumes to Resource Consultants, Inc., Attn: HR/LH, 2650 Park Tower Dr., Vienna, VA 22180. No calls. EOE.

CHIEF TECHNICAL OFFICER-wanted by Optical Engineering company. Requirements include Masters Degree in Physics or equivalent plus 5 years experience in optics or liquid crystal technology. Hands-on cleanroom experience for liquid crystal devices a must. Please respond to: Cheryl Perfuse, Scientific Solutions, Inc., 55 Middlesex St., Unit 210, North Chelmsford, MA 01863.

Programmer Analyst -Exp in dvlpg & dsgng computer systems in conjunction w/hardware product dvlpmt. Dsgn, customize & perform integration by applying prgmg skills in area of VB, Oracle, C++, SQL, Java, APP, SAP & GUI interface. Eval user request, analyzing & dvlpg specs for bridge dsgn, determine feasibility, cost & time reqd, compatibility w/current systems. BSC/BEng w/5 yrs exp or MSc/MEng, 40hrs, 8a-5p. Send resume to Nicole Colombo, Setercent Corp., 45 Main St., Ste 601, Brooklyn, NY 11201.

Programmer/Analyst, Memphis, TN. Under the direction and supervision of project manager assist in the design, coding, testing, implementing, debugging, optimizing & providing user documentation for new web-based apps. & systems using Microsoft Visual Studio 6.0, HTML, JavaScript, VB Script, XML, XSL, Active Server Pages, COM, Visual Basic, & SQL Server 7.0. Asst. in providing maintenance supp. for various existing web-based apps. & systems. Reqd: B.S. in C.S. or rel. field & 2 yrs. exp. 40 hours/week, 9am-5pm. Send resume to N. Murray, HR #38, Inventory Locator Service Inc., 3965 S. Mendenhall Road, Memphis, TN 38115.

Software Engineer. Perform PeopleSoft upgrade & data conversion on HR-Payroll & Benefits Admin; design/develop/modify custom packages in PeopleSoft HRMS, PeopleSoft Distribution & PeopleSoft Financial. Req 2 yr college edu plus 5 yrs work exp. Hrs. 8a-5p, M-F. Send resume to James Barber, ITG LLC, 2500 Northwinds Pkwy, Ste 200, Alpharetta, GA 30004. Rel VP.

Database Administrator (Norcross, GA) Configure network and RPC services, set up Oracle database on the AIX box, set up J2EE servers (WebLogic/WebSphere) on Unix servers. Set up Netscape web-servers on the Unix boxes, set up firewall & router configuration to allow restricted connected within intranet. Create users account, and also responsible for daily backups & daily maintenance. Req. B.Sc. in Com. Sc. + 8 mon. exp. w/ above skills. Resume to HR Director, Datasil Consulting, Inc., 3800 Holcomb Bridge Rd., Ste F, Norcross, GA 30092.

Sr. Software Engineer reqd. by In-Silico Drug Discovery/Custom Software Dvlpt. Co. in Burlington, MA. Must have Masters in Comp. Sci or Engg or equiv & 2 yrs of exp in designing, developing, implementing & testing application pkgs using C, C++, VC++, JAVA, JSP in n-tier environment under Windows, Unix & Linux platforms & performing data migration, schema design & creating database objects in relational databases such as Oracle & SQL Server. Pls respond to HR Dept, Anvil Informatics, Inc., 25 Corporate Dr., 3rd Fl, Burlington, MA 01803 or e-mail to HR@anvilinfo.com

Network Administrator (Multiple Openings) to install/maintain network & oversee network security; troubleshoot in Cisco Routers, IIS 4, Exchange Server 5.5 & Universe Pick; support computer/LAN integration; provide backup & disaster recovery with RAID implementation on Novell, Microsoft & Unix networks/servers. Req 5 yrs work exp as Network Administrator, IT Manager or related occupation. Hrs: 8a-5p, M-F. Send resume to Wellington Leisure Products, Inc., PO Box 244, Madison, GA 30650 Ref:LG

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Systems Programming Specialist - Partners Healthcare System (PHS), Inc. is looking for a Systems Programming Specialist to be part of our large IS dept. Duties will include comp system design, analysis, programming and admin. Set policy, procedure for sys. part.(UNIX) in backup, storage methodologies, products, rel. databases & standards in conjunction with user needs & enterprise guidelines. Provide staff orientation, training, supervision & eval. regularly. A candidate should have at least 5 yrs exp with systems software and/or adv degree. PHS Inc. provides an attractive salary and benefits package and is an equal opportunity employer. Please email resumes to: jmrimedia@partners.org or fax (617) 726-2834. Job Code: 6572.

Software Engineer - Raleigh NC. Require experience in design and development of applications using MFC, C++, Visual C++ or UML. Rogue Wave and C#/C#.NET. Attractive compensation package. Send resume to The Human Resources Dept. E-View Technology, Inc. 3202 Spring Forest Road, Raleigh, NC 27616-2822.

Systems Analysts. Jersey City. Develop information systems for project needs, prepare technical manuals; implement, upgrade and maintain systems. Reqs Bachelor's degree in Computer Science or related. 2 yr exp. Languages: SQL, PL/SQL, SQL C/Pro*C, COBOL, C++, VB/VBA, JAVA, HTML/XML, VBScript/JavaScript, Unix shell script. Operating Systems: UNIX, MS-DOS, Window 2000/NT/95 98. Software: Oracle Developer/2000 6i (Oracle cert. or equiv.) SCT banner 5.0, MS Visual Studio 6.0, MS Access, Portal Finance software, Seagate Crystal Reports, RDBMS Oracle 8i, MS SQL Server 7, MS Access Networks: maple-tree client/server, Telnet, FTP, TCP/IP, LAN. 40 hrs/week, 9-5, M-F. Send Resume Attn: Job 18, StratPro Limited, One Exchange Place, Suite 1000, Jersey City, New Jersey 07302.

Bahwan Cybertek Technologies, Inc. has several openings available for Prog/Sys Analysts, Soft. Engrs/Consultants, Proj Mgrs, DBAs, and Sys Admins to design/develop applications using skill sets such as: C, C++, VB, VC++, Java, EJB, Oracle, Informix, Sybase, UML, Internet, telephony and wireless technologies, Windows/UNIX admin. Require BS/MS or for equiv in Comp Sci/Engg (any branch)/Sci/Math/Bus or related field. Combination of edu and exp will be accepted. Highly competitive salaries & benefits. Travel/reloc required. Resumes to: Suite 312, 209 West Central Street, Natick, MA 01760.

Gorton's, America's leader in frozen seafood, has the following opportunities in the IT Department at our Gloucester headquarters.

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Software Testing/QA Engineer, $76K/Yr. Support installing/set-up of test automation tools to certify readiness of software systems/features. Oversee use of licenses & repositories for maintaining QA standards. Design & test software applications developed in Oracle, Java, VB on Unix and Windows platforms, for unit, integration, systems, validation, regression, stress, functional, & installation testing. Verify/validate requirements, identify design flaws, integrate hardware/software components into working systems, develop/execute test scripts, document/maintain test plans, procedures & reports. Must be certified in Win Runner, Test Runner, Test Director or equivalent. BS in Engineering or Computer Science + 2 yr. exp. Apply: Netserv, 6580 Jimmy Carter Blvd., Norcross, GA 30071 with proof of permanent work visa.

Salem Associates has several openings for F/T exp'ed Prog/Sys Analysts, Network Engineers, DBAs and S/W Engineers to develop applications using Cobol, CICS, VSAM, JCL, Java, PowerBuilder, HTML, VBScript, ASP, web/wireless technologies; Oracle, Developer 2000, PL/SQL, VB, Perl, C, C++, Rational Rose, Rogue wave, Oracle/Sybase/Informix database admin, Unix/NT system admin. Require BS/MS or foreign equiv in CS, Engg, Business, Science, Math or related field. 60% travel involved. Highly competitive salary. Contact: HR, 7074 Peachtree Industrial Blvd, Suite 210, Norcross, GA 30071.

PeopleSoft DBA, Columbia, MD. Responsible for dev, testing, documentation support, security & maintenance of clients projects using PeopleSoft PeopleTools technology. Perform data conversion & reports using SQR, Import Manager and Oracle SQL Loader & Crystal Reports & perform documentation & maintenance of code in change mgmt. SCCS on UNIX & NT. Reqd M.S. or equiv in C.S. & 2 yrs rel. exp. Inc. min. 1 & 1/2 years of exp. in PeopleSoft DBA. M-F 40hrs/wk + O/T as needed. Freq. relocation within U.S. may be necessary. Send Resume to J. Brigham, HR #31102, TEK Systems Inc., 6992 Columbia Gateway Drive, Columbia, MD 21046.

F/T Computer Systems Analyst to analyze user requirements, customize software to automate processing or to improve existing computer systems using HTML, SQL, analytical and design skills, database programming and administration skills, workflow, engineering skills, and object oriented programming skills such as Java Script, Visual Basic, Visual C. Must have a Bachelor's degree in CS or Engineering discipline. Must have 2 yrs of exp. Salary Competitive. Send resume to: Rachel Henderson at Wellbound Technology, Inc., 1395 S. Marietta Pkwy., Bldg. 400, Ste. 208, Marietta, GA 30067.

SOFTWARE DEVELOPER to design, develop, analyze and implement business application software systems on AS/400 Windows and UNIX in Access, SQL or DB2/400 databases using RPG, SQL Server and Oracle C++, VBasic and web-based technologies requiring performance tuning, peer-to-peer networking and distributed database management. Require B.S. (or equivalent) in Computer Science/Information Systems and three years experience in the job offered or any experience providing skills in described duties. Competitive salary and benefits. 8:30 am to 5:30 pm, M-F. Apply with resume to: Corporate H.R. Manager PRG-Schultz International, Inc., 2300 Windy Ridge Parkway, Suite 100 North, Atlanta, GA 30339-8426.

Ostrow Company, LLC. in Rock Hill, SC needs a Senior Systems Programmer to: Plan, schedule, write and direct preparation of programs including the Retail Interact System using AS/400 OS/400, V4RS CL/400, RPG/400, ILE/400, DB2/400, GEN-TRAN, Microsoft Office, Great Plains, Client Access, Dynamics, retail Interact, and Store 21 Point of Sales Software. Req. Bachelor's degree in comp sci, info systems, or related field. 2 yrs of exp in the job offered or 2 yrs exp w/ systems analysis and design. (At least one year of the req. exp must be gained w/in a retail merchandising or related industry.) Resumes to: F.Smith, Ostrow Company, LLC, 923 Standard Street, Rock Hill, SC 29731.

Systems Analyst. Analyze user requirements, design & write test scripts using Winrunner & Test Director for automatic payment processing systems on recharge machines in a client/server environment. 40 hours/week. $50,000/year. Must have a Bachelor degree in CIS. Fax resumes to Global Payment Systems at 770-934-0060.

Senior Consultants wanted by NYC computer consulting firm to analyze user needs & reqts, design, dvlp & implement mod to large applications using software technologies such as: Lotus Notes, COBOL, C, UNIX, Java Script, PowerBuilder & Sybase. Only experienced candidates need apply. Send resume or Patrick Strabella, HR Dir. Gemini Systems, Inc., 51 B'way, #1305, NY, NY 10001.

Compaq Computer Corporation, the industry leader in world-changing technology is hiring for all levels of the following positions in our New England, New York and New Jersey facilities: Researcher Staff, Hardware, Software and Systems Engineers, and Technology Consultants/Analysts. Interested applicants should submit resume to: HR Compaq Computer Corp., 200 Forest Street, MR01-1/K38, Marlboro, MA 01752 or contact through e-mail at jobs.jmm@compaq.com.

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Credit analysis of prospective clients utilizing credit reporting agencies in Latin America, w/ special emphasis on Argentina / Ecuador & Costa Rica. Must also coordinate collection efforts for bad debt utilizing local counsel in the various Latin American countries for commercial litigation. Must have knowledge of hardware brand to assess risks & credit limitations. Must be fully bilingual in English & Spanish - written & verbal. BA in Business Administration. Management req'd w/ at least 2 yrs. exp. or at least 2 yrs in a related occupation as a credit manager or 2 yrs as an accounts manager. Competitive salary. FT. Please contact: Monica Weinhold, Acron Corporation, fax 305-704-7099, email: mweinhold@acron.com

Marketing Specialist-Wireless Communications (LLC, NY) - you will research & analyze market conditions for wireless communication services & products, evaluate & determine ideal & effective marketing programs & identify target areas, businesses & network expansion options. Req'd Bachelor's degree in Busn. Admin or Marketing or Mgmnt or Finance & at least 2 yrs of exp in the above job or 2 yrs as Operational Risk Analyst/Officer 40 hrs/wk, from 9am-6pm. Salary commensurate w/exp. Pls send cover letter & resume or CEL/NET COMMUNICATIONS, Inc, 68-15 Fresh Meadow Lane, Flushing, NY 11365 or fax to (718) 606-1767. No phone calls, please. EOE.

WebDesigner needed to develop and maintain intranet, internet and extranet for large regional law firm. Requires Bachelor's degree in Information Systems or related field with 2 yrs. experience in intranet/E-commerce/web development. Send resume to John Green, 20th Fl., First Tennessee Bldg., 165 Madison Avenue, Memphis, TN 38103. Refer to job code: 9DBC.

Senior Programmer / Analyst (Memphis Tennessee) - Primarily responsible, under minimal supervision, for designing, developing, maintaining, testing and debugging complex software to meet defined requirements for applications in a Windows Client/Server environment utilizing PROGRESS 4 GL in version 8 or higher in both UNIX and Windows. Will formulate and define system scope and objectives and design or modify procedures to solve complex problems, which may include consideration of computer equipment capacity and limitations, operating time and form of desired results. Will prepare detailed specifications from which programs will be written. Responsible for independent completion of projects and for providing technical guidance and training to less experienced programmer/analysts. Must have Bachelor's Degree or equivalent, with a major field of study in Computer Science, Information Systems or related field. Must have 5 years of experience in the job offered or 5 years of experience in a PROGRESS 4 GL software development position. Experience may have been obtained concurrently and must include 1 year of experience in PROGRESS 4 GL in version 8 or higher in both UNIX and Windows. Please mail resume to: Sedgwick CMS, Cane Station, Corporate Human Resources Manager (REF: SPAS), 1100 Ridgeway Loop Road, 2nd Floor, Memphis, Tennessee 38120.

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VA based Consulting Firm seeks Database Analyst for OK office to design and develop database systems, user interfaces, tables and queries, define user requirements and provide solutions based on analyses, develop programs; monitor database performance; prepare graphs, charts, reports and manuals, maintain documents, and update computer database. Min req: Master's Degree in Computer Science and 1 yr in job or job-related exp including use of C++, SQL, Novell Netware, Windows NT, Visual Basic, Java Script, HTML and Oracle PL/SQL. Resumes to Resource Consultants, Inc. Attn: HR/JH, 2650 Park Tower Dr. Ste 800, Vienna, VA 22180. No calls. EOE.

Oracle/UNIX Consultant. Must have Master's Degree in Information Systems and Oracle Certification. Design, develop, and support Oracle Applications, specifically Oracle @ e-business suite. Design, develop, and support Oracle to e-business suite and database products (Oracle 9i9i) using Erwin, Designer 2000, Developer 2000, System Architect 2000, and Oracle. Will teach technical material to students/seminar attendants. 40 hrs/wk, 9 AM-5PM (including some weekends). $95K/yr. Send resume to Sirrom Valley, Inc., 500 Pinnacle Ct., Ste 550, Norcross, GA 30071.

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Putnam Investments, a global money management firm, handles investments of more than 14 million shareholders and 2,500 institutional clients. At Putnam, we manage over $300 billion in assets, including mutual funds, retirement plans and pension funds.

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Product design, devlp., & programming using Magic vrs 7.5 & 8. Knowledg of IC Cola model, syntax, HTML generation processing, JavaScript, & ASP. Relational Databases (Oracle, MS SQL Server). Perform bug verification & repair, release testing, beta support, detailed design, programming, unit & integration testing, expertise in product design problems. Create HTML docs. Reqs: Bachelor's or Foreign Equiv. in Comp. Sci./Comp. Engineering/related field & 4 yr. exp. in job offered or related occupation. Exp. must include IC/Cola/ & 2 yr exp. in Oracle & Magic. EOE. Resumes to Sandy Swanson, ePlus, Inc., 400 Herndon Parkway, Herndon, Virginia 20170.

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Maintain and support the Engine Management & Maintenance System Application, which is designed to manage data required for the management of engines and life limited parts for the engine model. Generate user-defined reports, perform data analysis, write data conversion programs and troubleshoot existing codes.

Must possess a bachelor's degree or its equivalent in Computer Science or a related field and relevant work experience, including Focus/Oracle programming dealing with configuration management, and programming and reporting functions.

Resume and/or cover letter must reflect each requirement above and specify reference code SRLSE or it will be rejected.

Forward resume to DFN, Human Resources Representative, Pratt & Whitney, 400 Main Street, Mail Stop 731-29, East Hartford, CT 06108. EOE

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Software Engineer Manage. design, draft specs, create sys plans, develop, configure & analyze various comp sys, software apps, web interfaces, custom reports, custom GUI & internet apps; manage clients & client integration issues; define & determine bus & sys reqs, provide tech solutions for bus systems, use Oracle, C/C++, SQL Server, Access 2000, VBScript, Java, LotusScript, JavaScript, Visual Basic, and JSP. Must have BS in CS, or rel field + 2 yrs exper in job offrd. fax resume to 646-792-9210, attn. Tigre HR.

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Nypro Inc. is seeking a Senior Programmer Analyst with a bachelor's degree in computer science or related field and 2 years of senior-level experience as a Programmer Analyst responsible for large-scale manufacturing and financial data processing systems. Apply by resume only to Employment Manager, Project #3047-6, Nypro Inc., 101 Union Street, Clinton, MA 01510.

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The selected individual will provide functional and system analysis in a freight disbursement environment. This entails leading specific projects with Six Sigma methodologies to support the quality simplification and standardization efforts of the organization. The individual will also provide oversight and support in the design implementation and optimization of software solutions in a MVS 3090 environment, using NDM, Cobol, and fixed block formatted files in conjunction with the Virtual Storage Access Method, as well as Powerbuilder applications, Appworx 3.06 configuration, EDI transactions with multiple formats, encryption for data transmissions through firewalls utilizing PGP. Additional responsibilities include designing, implementing and supporting Business Objects universes, participating in the design and maintenance of a SQL GOW managing web implementations, and leveraging Asian Indian software providers to provide cost productivity benefits. Requires a BS in Computer Science or technical equivalent, and 2+ years of related experience. Code: GECORP/271346/AN030

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Technical Manager (multiple openings) Seeks out, interviews, screens, and recruits information technology professionals in the United States and overseas. Evaluates recruitment and selection criteria to ensure conformance to professional, statistical and testing standards and recommends revisions as needed. Assists and advises establishment management in organizing, preparing and implementing recruiting and retention programs. Sets up and coordinates the technical interview panel, advises and formulates salary levels for information technology professionals based on market data, staffs all levels of technical requirements from programmer analyst level to manager level. Work requires extensive travel and frequent relocation. Must have two years of experience in the job offered or in an Operations/Engineering Manager/Supervisor occupation. Master's degree in Computer Science/Applications, Engineering, Math, Chemistry, Physics or a scientific or business related field. Will accept a Bachelor's degree or foreign equivalent, plus 5 years of progressive experience as a computer professional in lieu of Master's. Salary: $90,000+ per/yr. 40 hrs/wk., 8:00-5:00 p.m. Please submit resumes to: Manager, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 758, Kittanning, PA 16201-0759. Job Order No: WEB 230020

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Mphasis-BFL Ltd. and its subsidiary Mphasis Corporation has multiple openings for the following positions in its offices in Santa Monica, New York, and unanticipated client sites throughout the U.S. Programmer Analyst, Software Engineer, Project Manager, Management Analyst, Sales Engineer, Business Development Manager. Please send resume and salary history to: hr@mphasis.com to mail to: HR, 444 Park Avenue South, Suite #503, New York, NY 10016

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Technical Manager (multiple openings) Seeks out, interviews, screens, and recruits information technology professionals in the United States and overseas. Evaluates recruitment and selection criteria to ensure conformance to professional, statistical and testing standards and recommends revisions as needed. Assists and advises establishment management in organizing, preparing and implementing recruiting and retention programs. Sets up and coordinates the technical interview panel, advises and formulates salary levels for information technology professionals based on market data, staffs all levels of technical requirements from programmer analyst level to manager level. Work requires extensive travel and frequent relocation. Must have two years of experience in the job offered or in an Operations/Engineering Manager/Supervisor occupation. Master's degree in Computer Science/Applications, Engineering, Math, Chemistry, Physics or a scientific or business related field. Will accept a Bachelor's degree or foreign equivalent, plus 5 years of progressive experience as a computer professional in lieu of Master's. Salary: $90,000+ per/yr. 40 hrs/wk., 8:00-5:00 p.m. Please submit resumes to Fayette County Team PA CareerLink, Attn: JS Supervisor, 32 Iowa Street, Uniontown, PA 15401-3513. Please reference Job Order #: WEB 229083

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UCITA

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In particular, the repeal would be a setback for the insurance industry. When Virginia adopted UCITA two years ago, insurers persuaded lawmakers to include an exception prohibiting software licensers from restricting transfers as part of mergers, acquisitions or sales of subsidiaries or affiliates.

Vendors Steadfast

But IT vendors opposed the provision, arguing that it violates federal copyright law and preempts a vendor's ability to negotiate contract terms with users. Vendor associations succeeded this year in getting the Virginia legislature to revisit the issue.

Josh Levi, director of policy for the Northern Virginia Technology Council, a trade group in Herndon, said the amendment raised potential issues for software vendors as well as corporate users who were looking to transfer ownership of proprietary software.

To illustrate his point, Levi cited a hypothetical case: A large soda retailer sells its proprietary distribution system to a noncompeting company, which is then acquired by one of the retailer's direct competitors. In that situation, the retailer might want to keep its intellectual property out of its rival's hands, Levi noted.

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But the insurance industry, which has been one of the most vocal opponents of UCITA laws, is worried that a lack of license-transfer protections could affect the ability of banks, financial services firms and insurers to merge as allowed under the 1999 federal Gramm-Leach-Bliley Act.

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Quick Link For more news and features on UCITA, visit our special coverage online: www.computerworld.com/s/71880

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HP/Compaq

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In the long term, such product-oriented research should yield substantial benefits in areas ranging from printers, scanners and digital imaging products to core enterprise servers, services and storage products, he said.

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The companies are also appealing to the business concerns of users. According to Peter Mercury, vice president of Compaq's services organization, much of the integration work on the services and support front has already been planned and is ready to be put into motion once the merger is approved. Nearly 200 people from both companies and an external consulting firm have slogged through the issues involved in combining their services organizations, he said.

"We want to make sure that there is going to be no impact on customer-facing employees and their first lines of supervision," Mercury said.

But not all users are convinced that the transition would be smooth.

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Thin Margin

With a shareholder vote at hand, institutional investors hold the key to HP's and Compaq's future. But there's been no consensus on whether the merger is a good idea.



- Public Employees Retirement System of Ohio
- Bank of America Capital Management
- Wells Fargo & Co.
- California Public Employees' Retirement System
- California State Teachers' Retirement System
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FRANK HAYES/FRANKLY SPEAKING

Consultant Watch

SO MUCH FOR THE GOLDEN AGE OF CONSULTING. On March 1, Lou Gerstner stepped aside as IBM's CEO. Gerstner, who was once a management consultant, rebuilt IBM by focusing on consulting and trumpeting the shocking (for IBM) approach of using whichever products customers wanted, instead of just pushing the IBM line.

Last week, Compuware sued IBM, claiming — among other things — that IBM Global Services is abusing its consulting clients by, well, pushing the IBM line (see story, page 6).

And just when we thought we'd run out of ways for the consulting business to get into trouble, too.

After all, Arthur Andersen has become the poster child for consulting abuses. Thanks to the reputation it gained with its work for Enron, Andersen last week was losing customers, facing federal indictment, trying to sell itself to a Big Five competitor — any competitor — while being told by its Independent Oversight Board to get rid of its consulting businesses.

And those Big Five competitors, which have consulting businesses of their own, are now under increasing public scrutiny. Regulators and lawmakers are tripping over one another in their rush to tighten the rules on how much a consulting practice is allowed to leverage the rest of the business and vice versa.

For the accounting firms, that crossover is between consulting and accounting services. For IBM and other vendors, of course, the crossover is between consulting and products.

Ironically, the way Anderseo's auditors got in trouble was by letting themselves be pushed around by their clients and, maybe, their coosultants — while the only way IBM could do what Compuware claims is if clients let themselves be pushed around.

And nobody should be letting IBM do that.

That's not a slam at IBM Global Services. I don't know whether Compuware is right about IBM or whether IBM has done anything illegal. IBM's consultants may be making all their product recommendations in good faith. I hope they are.

But face it: They're not ultimately working for the clients. They're working for IBM.

So, when those consultants make decisions — about products or architectures or costs or trade-offs — they'll make the decisions as outsiders. That's inevitable. Even if the decisions are made in good faith, no ooe can be completely sure they'll be in the client's best interest.

And tbe hired guos from Compaq and EDS and Acceoture and Perot have the same problem. They may be good people, but they're not *our* people.

Some of their decisions will be trivial. But some will have expensive, long-term consequences — and we can't afford *not* to stay on top of those decisions.

Does that seem obvious? It should — it's the oldest rule of working witb consultants. But after years of outsourcing and project consulting, too many IT executives have forgotten the importance of keeping their own people in the loop when consultants are in the shop.

We shouldn't be micromanaging or playing prisoo guard or prosecutor — after all, if we really can't trust our consultants, we should fire 'em right now. But we must make sure that nontrivial choices are sanity-checked and that major decisions are carefully vetted.

Does that cost a little more of our time and attention? Sure. But it also means we're a lot less likely to be locked into products or blindsided by systems that aren't maintainable or scalable or suitable to long-term business plans.

Think of it this way: If you think your consultants might be trying to push their own products or somehow sucker you in, staying on top of them is the only way to protect yourself. And if you think your consultants are doing a good job, it's the only sure way to keep them out of trouble. ▶



Frank Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

SOFTWARE TESTER pilot fish works on a staff with programmers from other countries, and it's not always easy to determine exactly which code has been changed. But there's no language barrier with one programmer, who always gives fish the same response: "Not know what old program do, so comment all code out, write new program to do what old program do."

PROCUREMENT department users want to replace their legacy mainframe software with a "suite of tools," they tell IT manager pilot fish. After hearing the "suite of tools" buzzphrase repeated endlessly in a meeting, fish asks procurement manager what package they'll buy. He says, "Oh, probably that one from the 'Sweeda' company."

NEW IT director from Scotland tells staff, "This project *must* be done in a fortnight." Impossible, says manager pilot fish, it'll take at least two weeks. When boss points out that a fortnight *is* two weeks, manager sits down.

"THIS PICTURE is moving," the e-mail says – but user can't figure out why the attached photo doesn't display as animation. IT manager pilot fish sighs. "It took several minutes to explain that the picture, of events related to Sept. 11, was not meant to be moving as in animated, but as in emotional."

USER ASKS IT pilot fish for a price quote on some replacement monitors, and fish obliges with prices for 19-in. monitors with black cases. User fires back. "The two quotes you provided were for black monitors Can you tell me what the prices are for *color* monitors?"

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The 5th Wave



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